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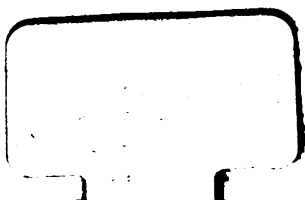
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APPROPRIATION BILL.

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HEARINGS

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BEFORE THE

COMMITTEE ON AGRICULTURE AND FORESTRY

OF THE

UNITED STATES ^{Cong.} SENATE, ^{Corn.}

ON THE

BILL (H. R. 24815)

"MAKING APPROPRIATIONS FOR THE DEPART-
MENT OF AGRICULTURE FOR THE FISCAL
YEAR ENDING JUNE 30, 1908."

WASHINGTON:
GOVERNMENT PRINTING OFFICE

1907.

25-188



Class S 21

Book 1 Z 2
1907a

Senator WARREN. That is the price of the messengers, anyway--\$840.

The ACTING CHAIRMAN. All right. Now we go to page 4, line 18, under the Weather Bureau. The appropriation last year was for seventeen clerks. This year the Department estimated for eighteen and the House has put in eighteen.

Senator WARREN. You have the estimate now?

The ACTING CHAIRMAN. The estimate is eighteen, and the House accepted the estimate.

Senator WARREN. Now, down on the last line there is the same thing.

The ACTING CHAIRMAN. Not quite.

Senator WARREN. An increase of one.

The ACTING CHAIRMAN. The appropriation was eight.

Senator WARREN. They increased it one.

The ACTING CHAIRMAN. The estimate is nine, and the House increased it one.

Senator WARREN. Then it is just the same.

The ACTING CHAIRMAN. Yes.

Senator WARREN. They allowed the estimate?

The ACTING CHAIRMAN. Yes.

Now we go to the bottom of page 6. This is under "Contingent expenses, Weather Bureau." Here is a notation, "And for horse and carriage for use of Chief of Weather Bureau."

Senator WARREN. No; he does not want that. He wants an increase of salary instead of that, because it was cut out in former bills, and he had to buy his own outfit of horse and carriage. He says that will be of little value if you put it on, while the salary increase will be of value. That same matter came up last year, though you may have forgotten it.

The ACTING CHAIRMAN. Yes; I recall it. Did we not increase his salary last year?

Senator WARREN. No.

The ACTING CHAIRMAN. How long ago was it?

Senator WARREN. Some years ago.

The ACTING CHAIRMAN. Not so many years ago.

Senator WARREN. Well, perhaps four years ago.

Doctor GALLOWAY. The Secretary said that he was not going to recommend this at this time, nor the carriage matter either, because that matter had been so thoroughly discussed in the House that he thought it would better rest for the present.

Senator WARREN. Who has been the Acting Secretary lately, since the Secretary has been away?

Doctor GALLOWAY. Mr. Hays.

Senator WARREN. Formerly, you know, Mr. Moore acted; and of course a carriage was rather necessary then, because of the remoteness of his station.

Doctor GALLOWAY. The Secretary's carriage was there at his disposal, however.

Senator WARREN. Yes.

The ACTING CHAIRMAN. This was offered in the House, as I understand it?

Senator PERKINS. It was put in the bill by the committee, and went out on a point of order, as being new legislation.

The ACTING CHAIRMAN. Yes.

Senator WARREN. Mr. Chairman, what I intended to convey was that I did not favor the putting in of a carriage, but that if we could increase his salary I would vote for it. If you think it is best to leave it in, of course that is another matter; but I would not want to put the carriage back there. I think it is not necessary.

(After an informal discussion.)

Doctor GALLOWAY. Mr. Chairman, the Secretary this year recommended that the salaries of the four chiefs of the large bureaus be raised to \$5,000.

The ACTING CHAIRMAN. Yes; and I am in favor of it.

Senator PERKINS. You only get \$4,500, do you?

Doctor GALLOWAY. That is for the chiefs of the Bureaus of Animal Industry, Plant Industry, Forestry, and Chemistry, all of which have responsible duties.

Senator PERKINS. I am inclined to think we ought not to increase one unless we increase them all.

Senator WARREN. I am not against the increase, but I think if we do that we had better increase Mr. Moore's salary, for this reason: He has, of course, all these weather stations all over the United States, in every quarter, which makes his duties a little different from those of the other chiefs.

Doctor GALLOWAY. Well, Mr. Chairman, the responsibility of the other chiefs of bureaus is greater. For instance, the appropriation for the Bureau of Animal Industry is just twice as much as that of the Weather Bureau.

Senator WARREN. Nobody knows any more than I do about the work of the Bureau of Animal Industry. You are right; it has a very large field; but I am speaking of this as different from some of the Bureaus whose work is not spread in that way.

Senator PERKINS. But Doctor Galloway is no sluggard, let me tell you.

Senator WARREN. No, no; I know that.

Senator PERKINS. He works more than eight hours a day; do you not, Doctor?

Doctor GALLOWAY. Yes.

The ACTING CHAIRMAN. Let us pass over that until we reach the others on the question of salary.

Senator WARREN. That is a good suggestion. We can do that in executive session.

The ACTING CHAIRMAN. The next one is on page 7. This relates to the salaries of station employees, etc., of the Weather Bureau, and it is proposed by the Department here that there should be inserted in line 8, after the word "in," the following: "the District of Columbia or elsewhere in," so as to make it read, "Messenger boys, laborers, and other necessary employees, for duty in the District of Columbia or elsewhere in the United States." You will find, as you go along in the bill, several interlineations of that character with respect to other divisions.

Senator PERKINS. We have no station at Bermuda, Doctor, have we?

Doctor GALLOWAY. Yes; the Weather Bureau has an observatory there.

Senator PERKINS. That is an English possession.

Senator WARREN. We have observers outside of this country, because it is necessary in order to get the different winds or currents, you know.

Senator PERKINS. Yes; but I thought we had an arrangement with them by which we interchanged with them. I did not know we had a station at Bermuda. If the Governor of Jamaica was there, he would fire us out.

Senator WARREN. This says, "In the West Indies or on adjacent coast, in the Hawaiian Islands, and in Bermuda." This District of Columbia interlineation is—

Doctor GALLOWAY. Merely to unify.

Senator WARREN. Not only to unify, but it is to pass the Treasury, is it not?

Doctor GALLOWAY. Yes. The Treasury Department itself and our disbursing officer asked that that be put in.

The ACTING CHAIRMAN. It does not give you any more money?

Doctor GALLOWAY. No; it does not give us any more money.

The ACTING CHAIRMAN. I think we will pass that. If there is no objection, we will consider that as adopted.

Doctor GALLOWAY. In some places they have put it in and in other places they have left it out unintentionally.

The ACTING CHAIRMAN. Here is a note at the bottom of page 7:

The above wording in regard to leave of absence has been changed as indicated to make it conform with the wording of the clause in all other bureaus of the Department and differentiate between employees outside of Washington and in Washington. An increase of \$10,000 is also submitted to cover salaries of employees required to establish and maintain new stations.

Doctor GALLOWAY. That was a recommendation in the estimates as they were made to the House, and the House committee reported it, and those things were put in. That was just taken from the estimates.

The ACTING CHAIRMAN. Let us see what these italics are:

And the employees of the Weather Bureau outside of the city of Washington may hereafter, in the discretion of the Secretary of Agriculture, without additional expense to the Government, be granted leave of absence not to exceed fifteen days.

I suppose that is a House provision there. I suppose it ought to apply to those employees outside of the city of Washington?

Senator WARREN. I expect so.

Doctor GALLOWAY. It is the same in all the other bureaus.

The ACTING CHAIRMAN. All right. On page 8 there are some italics, I notice, matter that was adopted by the House, in line 12.

Senator WARREN. That is really a check, is it not, to see that a certain thing does not cost more than \$18,000?

Doctor GALLOWAY. Yes, sir; that is all.

Senator WARREN. Is that satisfactory to the Department?

Doctor GALLOWAY. Yes, sir; that was put in by the recommendations of the Department.

The ACTING CHAIRMAN. There is another at the bottom, beginning in line 18:

And hereafter the Secretary of Agriculture is authorized to sell any surplus maps or publications of the Weather Bureau, and the money received from such sales shall be deposited in the Treasury of the United States, section 227 of the Revised Statutes notwithstanding.

That is something the Department wants in?

Doctor GALLOWAY. Yes.

Senator WARREN. What is this inhibition here in section 227 of the Revised Statutes, Doctor?

Doctor GALLOWAY. That statute simply provides that money shall be turned into the Treasury.

Senator WARREN. But this so states. It states that we shall sell any surplus maps or publications to the public, and that the money received from them shall be deposited in the Treasury, etc. Now, why do we say that?

Doctor GALLOWAY. It is simply in accordance with the statute.

The ACTING CHAIRMAN. I do not think it was deposited there before.

Senator WARREN. Why does it say, "section 227 of the Revised Statutes notwithstanding?" If it is in conformity with it, why do we say "notwithstanding?" That is what I want to get at.

(By direction of the committee, the section of the Revised Statutes above referred to was sent for.)

Doctor GALLOWAY. In reading that, I supposed it was the same clause that we have.

Senator WARREN. I know what you had in mind, but I discovered that this was the negative form.

Senator PERKINS. Just neutralizing it.

Doctor GALLOWAY. We do not want to do that.

Senator PERKINS. No.

Doctor GALLOWAY. Because that is the very thing you discussed here last year.

Senator PERKINS. That is one of the checks?

Doctor GALLOWAY. Yes; one of the checks.

Senator PERKINS (after an informal discussion). You remember, Senator Warren, with the forestry reserve, they were receiving and disbursing officers.

Senator WARREN. They undertook to make a scandal over it.

Senator PERKINS. I knew it was all right, but it was not the right way to do. It ought to be paid into the Treasury and disbursed.

Senator WARREN. The object is to find what things cost, to find what a Department costs, to find what the United States is receiving and spending; and in order to do that the money has to go into the Treasury and be appropriated out.

Senator PERKINS. And then it is a settled principle that no corporation or company will receive money and permit the man who receives it to disburse it. It must go into the company's treasury and be audited and disbursed by the cashier or the disbursing officer. That is the proper principle, I think, on which business should be conducted by the Government as well as by individuals.

Senator WARREN. The item about buildings, on page 8, is something that went out on a point of order, is it?

Doctor GALLOWAY. Yes, sir; the whole thing went out on a point of order. That is simply the business policy of the bureau, to put up these buildings at its outlying stations, instead of paying rent.

Senator WARREN. And you can get so much better work?

Doctor GALLOWAY. Yes, sir.

The ACTING CHAIRMAN. That ought to go in, if there is no objection.

Senator WARREN. I move that it be reinserted.

The ACTING CHAIRMAN. All right. We will return to this matter of the Revised Statutes when we get them.

Now comes the Bureau of Animal Industry.

Senator PERKINS. Just make a notation of page 8. We will turn back to that, will we not?

The ACTING CHAIRMAN. Yes. I think perhaps we had better wait for that. The clerk has gone for the Revised Statutes.

Senator DOLLIVER. There seems to be here a proposed increment in the salary of the chief.

The ACTING CHAIRMAN. I will say, gentlemen, that this morning Senator Proctor and myself went over this bill down at his rooms. He is not able to be here, and he asked me to come down. We went over the bill, and he and I agreed that it would be a good idea to increase the salaries of these bureau chiefs up to \$5,000. I think there are three or four of them—

Senator SIMMONS. Do you mean all the bureau chiefs?

The ACTING CHAIRMAN. Yes; and give them \$5,000 apiece.

Doctor GALLOWAY. There are four of them.

The ACTING CHAIRMAN. Four altogether, including the Weather Bureau.

Senator WARREN. You do not put it this way—that you expect to put all the chiefs of divisions on the same plane of compensation; but you believe there are four that ought to be raised? That is the point; is it not?

Doctor GALLOWAY. There are more than four bureaus.

Senator WARREN. Oh, yes—of course; but I do not think we want to adopt the principle that being the chief of a bureau means getting a certain amount of money.

Doctor GALLOWAY. Animal Industry, Plant Industry, Chemistry, and Forestry are the four larger bureaus. Then we have about half a dozen smaller ones, the chiefs of which are drawing \$3,000 and " 500.

The ACTING CHAIRMAN. There are some, of course, that we could not give that much to.

Senator DOLLIVER. The House seems to have made this \$4,500.

The ACTING CHAIRMAN. Let me read at this point this section the Revised Statutes, section 227:

The Chief Signal Officer may cause to be sold any surplus maps or publications of the Signal Office, the money received therefor to be applied toward defraying the expenses of the Signal Service, and an account of the same shall be rendered in each annual report of the Chief of the Signal Service.

Doctor GALLOWAY. That is all right, sir.

Senator WARREN. That is all right; then that is a different law. That is what I wanted to get at. You see, it reverses it; it gives this particular Signal Corps a privilege that is not allowed anywhere else.

The ACTING CHAIRMAN. The way to do this, then, is to strike out all after the word "States." That expresses it, does it not?

Senator WARREN. Yes; it is surplusage. There is nothing wrong about it. They simply put that in because they were a little afraid—

Senator PERKINS. So that it will be deposited in the Treasury of the United States.

Senator WARREN. I think that would be all right, but it does no harm.

The ACTING CHAIRMAN. We will let that paragraph stand, then.

Senator WARREN. But it is well enough to have it understood, because somebody will ask about it on the floor.

Senator PERKINS. Are you not going to strike out that section, down to "notwithstanding?"

The ACTING CHAIRMAN. No; we are going to leave it in.

Senator LATIMER. As I understand, the statute provides that they can disburse that money without its going into the Treasury?

Senator WARREN. Oh, yes.

The ACTING CHAIRMAN. This is practically a repealing of that matter?

Senator WARREN. Yes.

The ACTING CHAIRMAN. Now we pass to the Bureau of Animal Industry.

Senator WARREN. We pass over the matter of salaries of chiefs?

The ACTING CHAIRMAN. Yes. In that little item at the top of the page the appropriation last year was \$4,500, and that is the same thing.

Senator DOLLIVER. Do you want to let that stand at \$5,000?

The ACTING CHAIRMAN. We are going to revert to the matter of salaries after we get through here.

Senator SIMMONS. Mr. Chairman, right in that connection I want to call attention to something that strikes me with some force. I notice that the chief clerk of the Weather Bureau gets a salary of \$2,350. The chief clerk of the Bureau of Animal Industry gets a salary of only \$2,000. That same disparity exists and applies to others.

Senator PERKINS. Why is that, Doctor? What about the Bureau of Animal Industry? Why is not the clerk of that Bureau as important as the clerks of the others?

Doctor GALLOWAY. He is just as important as far as the detail work is concerned.

Senator WARREN. I think the point was that it was a later-established bureau, and was smaller in its earlier days; but it has grown up now immensely, of course, especially since the meat-inspection business was inaugurated.

Senator PERKINS. How is it as to his qualifications? In order to be qualified to perform the duties of the Bureau of Animal Industry, must he not be a man well educated, of scholarly attainments, and technical knowledge?

Doctor GALLOWAY. In the Weather Bureau the chief clerk practically performs the duties of the Chief in the absence of the Chief. In the Bureau of Animal Industry the chief clerk does not perform those duties. He is a chief clerk and nothing else. We have an Assistant Chief of the Bureau of Animal Industry. In the Bureau of Plant Industry the chief clerk performs not only the offices of the chief clerk, but in the absence of the Chief and Assistant Chief he acts as the Chief of the Bureau.

Senator SIMMONS. What does he get?

Doctor GALLOWAY. Two thousand dollars.

Senator SIMMONS. Why ought he not to have the same salary as the chief clerk of the Weather Bureau?

Doctor GALLOWAY. That is a question, of course, for the committee to decide.

The ACTING CHAIRMAN. Senator Simmons, I make the suggestion

that the question of the increase of salaries of clerks be allowed to go over until next winter; because my own impression is that we are coming in here next winter with a bill for a general increase.

Senator SIMMONS. That is, a percentage increase?

The ACTING CHAIRMAN. Yes. That would be the basis. Then we would use that as the basis of an argument for—

Senator SIMMONS. But that would not remedy any disparity, if there is any existing.

The ACTING CHAIRMAN. No.

Senator SIMMONS. That disparity ought to be removed, so that he will get the same benefit of the percentage increase as the higher-paid clerks.

The ACTING CHAIRMAN. You will observe that nearly all, or quite all, of the employees of the Weather Bureau have been receiving higher salaries than those of any other bureau.

Senator SIMMONS. Yes; I think that is so.

The ACTING CHAIRMAN. I hardly know why it is, but it is so.

Senator SIMMONS. I have noticed that ever since I have been here.

The ACTING CHAIRMAN. It is so.

Senator WARREN. This Bureau of Animal Industry is a great bureau now, and has grown greatly in importance since it was established. It started out in a modest way, but now its duties are very important.

The ACTING CHAIRMAN. Yes; more important than those of the Weather Bureau.

Senator SIMMONS. We have added very much to the duties of that Bureau recently by the enactment of the meat-inspection law.

Senator WARREN. Immensely.

The ACTING CHAIRMAN. If we go into an increase of the salaries of the chief clerks, etc., we will have to take them all up.

Senator DOLLIVER. Do not let us have that discussion now.

Senator SIMMONS. I only speak of this one clerk because it seems to me that if there is a necessity for an increase in the salary of the Chief of the Bureau, the same principle would apply to the chief clerk, and especially when he performs the duties of the Chief when he is not there.

The ACTING CHAIRMAN. The next item is on page 11, the House provision there in line 10. They have inserted—

and for the construction and alteration of buildings thereon as may be necessary from time to time in the discretion of the Secretary of Agriculture.

That is for that experiment station at Bethesda, Md.

Senator WARREN. Bethesda, Md.; yes.

The ACTING CHAIRMAN. That seems to be a House provision. I suppose it must be some—

Doctor GALLOWAY. With the increasing work in quarantine measures and other investigations that are in progress here in Washington, it has become essential to have more buildings in Bethesda, and we simply want the authority to put them up in case the necessity arises. They are all cheap buildings.

The ACTING CHAIRMAN. Then in line 14—

Senator WARREN. That seems to be the same thing.

The ACTING CHAIRMAN (reading): "To construct and alter buildings thereon as may be necessary from time to time in the discretion of the Secretary of Agriculture."

Doctor GALLOWAY. We do not ask for any more.

The ACTING CHAIRMAN. We will let that go, then. We will adopt it.

Senator DOLLIVER. Mr. Clerk, did you get a letter from me inclosing some correspondence with the president of the Great Western Railroad?

The CLERK. I think this is it, right here.

Senator DOLLIVER. I expect it is.

The ACTING CHAIRMAN. I got a letter from him, too—Mr. Stickney.

Senator DOLLIVER. Yes.

The ACTING CHAIRMAN. We have not quite reached that yet, have we, Senator Dolliver?

Senator DOLLIVER. Pretty nearly.

The ACTING CHAIRMAN. That refers to something in this bill. I do not know but what this is it here on page 13.

Senator DOLLIVER. Page 13; yes.

The ACTING CHAIRMAN. Is that what Mr. Stickney wrote about—animal breeding? No; what he wrote to me about was—

Senator DOLLIVER. It is the whole business of the science of breeding animals for a particular quality.

The ACTING CHAIRMAN. The provision on the blank page opposite 13, here, went out in the House on a point of order, and was not in last year.

Senator PERKINS. Had we not better let it stay out?

Senator WARREN. I do not think so.

Doctor GALLOWAY. The Secretary estimated \$25,000; and then, when it was before the House, there was considerable talk on the subject, and Mr. Brooks, of Colorado, introduced that amendment, which the committee approved. It was so reported to the House, and went out on a point of order.

Senator WARREN. They had a matter of \$75,000 altogether, did they not?

Doctor GALLOWAY. Yes, sir. The Secretary does not care so much about the exact wording; but if the committee sees fit to make that \$50,000, it can be used to good advantage.

The ACTING CHAIRMAN. I have a long communication on the subject, which I shall not read.

Senator PERKINS. What page in the hearings in the House refers to that matter, Doctor; do you remember?

Doctor GALLOWAY. You will find it under "Animal Industry," under Doctor Melvin. I do not know what page it was on. I have here the discussion that took place on the floor of the House.

Senator WARREN. The Secretary does not value so much the proviso, as I understand?

Doctor GALLOWAY. No, sir.

Senator DOLLIVER. What page are you referring to?

The ACTING CHAIRMAN. Opposite page 13.

Senator DOLLIVER. It does not seem to be pasted in my book.

Senator WARREN. It is the proviso in the House.

Senator DOLLIVER. It is not in my book.

Senator WARREN. The proviso simply explains, as I understand it, exactly what the Secretary of Agriculture expects to do anyway.

Doctor GALLOWAY. That is correct.

Senator WARREN. And it is rather useless to cumber the books with it, and it creates suspicion.

The ACTING CHAIRMAN. But the main point, as I understand it, is an increase of \$25,000.

Senator PERKINS. Why not increase the appropriation, and not encumber the bill with the proviso?

Senator WARREN. That is the idea. Ought we to go to \$75,000 on that, Mr. Chairman, or not?

The ACTING CHAIRMAN. Fifty thousand dollars is enough, is it not?

Senator DOLLIVER. It seems to me that \$50,000 would be all right. (After a discussion among members of the committee:)

Senator WARREN. We have the worst-mounted cavalry in the world. Of course I bar out these tropical countries, where they use their native horses, but in Japan, even, their cavalry is better mounted than ours.

Senator PERKINS. Our horses out here at Fort Myer can almost talk.

Senator WARREN. Yes; but it takes an enormous amount of selection to get them, and the point is that they breed for cavalry, and they breed for other types for different kinds of work; and the Department's idea is to get classes of types of horses to furnish.

Senator DOLLIVER. Does this experiment apply to the breeding of cattle?

Senator WARREN. Certainly; in this way—I just took the horse for illustration: For instance, you are a farmer, and you have fine stock.

Senator DOLLIVER. That is right.

Senator WARREN. And you invite the Secretary of Agriculture or his representative to look over your stock of females. He makes an arrangement with you by which you provide that a stallion furnished to you shall cover certain mares, and the animals shall be raised in a certain way and handled in a certain way, so as to be able to exhibit the results of such breeding to the Agricultural Department or to anyone else. Do I state that clearly?

Doctor GALLOWAY. Yes, sir.

Senator WARREN. And the same with cattle, and the same with sheep.

Senator DOLLIVER. Now, Mr. Stickney says that there is no sense or science in our breeding milch cattle, milch cows, in our section of the country. The result is that our cows of the same breeds apparently vary from 150 to about 500 pounds of butter per annum.

Senator WARREN. Does he mean that the breeding has no effect?

Senator DOLLIVER. He means to say that we give no attention to breeding for the production of milk and butter.

Senator WARREN. He does not mean to say that we can not control that by breeding?

Senator DOLLIVER. He wants something put in here so that these State experiment stations will be enlisted in the problem of breeding dairy cattle, and so on.

The ACTING CHAIRMAN. Is there any objection to increasing that to \$50,000?

Senator LATIMER. Why should not this be done in the experiment stations? Why do we want to create a separate arrangement for

breeding horses? Why should the Government go into that sort of business?

Senator WARREN. At the experiment stations you have got to furnish the males and females and meet all the expense. This is a special thing. We are doing the work in unison with others. They get the benefit of what might amount to \$500,000 or \$1,000,000 by simply furnishing, perhaps, the male, we will say—the male horse or the male cattle. For instance, they will furnish a bull of some butter breed, you know, with the understanding that it shall be put upon certain cows and the results shown. They are getting at types, you know.

Doctor GALLOWAY. They are cooperating with the stations, too.

Senator WARREN. Yes; they are cooperating with the experiment stations, but the point is that it is getting at the results with a small expense, and people are glad to avail themselves of it. They have the stock, you see. If I have, for instance, a nice bunch of cows, and you offer me a very fine bull, and you want to see the type, I have the stock, I have the animals, you know, and I can have the free use of the sire; but for that I must conform to certain ways of breeding and raising.

Senator DOLLIVER. The idea seems to be about the same as that of free seeds to the people.

Senator PERKINS. Doctor Melvin recommends crossing between the zebra and the horse, I see.

Senator WARREN. Yes. If \$50,000 is as high as you want to go, I move that it be made \$50,000; but—

The ACTING CHAIRMAN. I have no objection. It is an increase of \$25,000. That will be the order, if there is no objection; that will be increased.

Senator WARREN. All right.

The ACTING CHAIRMAN. Now we come to the famous meat-inspection provision, which runs clear over to page 26.

Doctor GALLOWAY. There is no change in that—not a word.

The ACTING CHAIRMAN. There is some change in the punctuation—that is all.

Doctor GALLOWAY. That is simply to make it as it was last year.

Senator WARREN. You have the word "hereafter" in here, and you have cut it out.

Doctor GALLOWAY. We want it in.

Senator DOLLIVER. Do you make any provision for putting the date on the can?

The ACTING CHAIRMAN. This is precisely as it was last year, without that; is it not?

Doctor GALLOWAY. Yes, sir; exactly as it was last year.

Senator PERKINS. This amount was increased from \$25,000 to \$50,000, was it?

Senator WARREN. Yes. Now, as to this word "hereafter"—I understand perfectly what you mean. We passed this last year. The law is dead now unless we reenact it. We passed it for one year, and made an appropriation for one year. Now it is dead. By putting that word "hereafter" in here, we not only pass it for this year, but until it is repealed it is the statute of the country.

Doctor GALLOWAY. Well; it was in last year.

Senator WARREN. Was the word "hereafter" in last year?

Doctor GALLOWAY. No; but at the end of it there was a clause saying that it was thereby made a permanent appropriation.

Senator WARREN. In that case there is no use of the word "hereafter," unless it applies to certain wording. I recall now that you are right.

Doctor GALLOWAY. Our solicitor thought that we had better take out that permanent paragraph at the end and just put in the word "hereafter" here, and next year simply drop the whole thing out of the bill.

Senator WARREN. All right; I guess he knows what he is talking about.

The ACTING CHAIRMAN. Do you want that word "hereafter" in? Do you think that is the thing?

Doctor GALLOWAY. Yes.

Senator WARREN. If we want to continue the law.

The ACTING CHAIRMAN. Yes; that is the idea. I think we do, because that is a separate proposition.

Senator DOLLIVER. If that law should fail, would not that general provision of law put in the appropriation bill survive the appropriation?

Senator WARREN. The \$3,000,000 would, because of the terms—

Senator DOLLIVER. Would not the terms of the law survive the fiscal year?

Senator WARREN. They would if it was a law that took the place of a law on the statute books; but a law in an appropriation bill that simply appropriates for that year dies at the end of the year unless something in it says "hereafter," or that it is appropriated for the future.

Doctor GALLOWAY. Here is the clause, Senator, that we had in there last year.

Senator WARREN. Read that.

Doctor GALLOWAY (reading):

That there is permanently appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$3,000,000, for the expenses of the inspection of cattle, sheep, swine, and goats, etc.

Senator WARREN. Now he wants to strike that out and to put in the word "hereafter" at this point. Then, you see, you have what you want—a statute—and not simply an appropriation bill for one year.

Senator DOLLIVER. Somebody seems to have drawn a red line through the word "hereafter."

Doctor GALLOWAY. That was an error on our own part. We thought it would be well to have this clause in the back, but our solicitor concluded that we had better take that out and put in the word "hereafter."

Senator WARREN. I think he is right. Now, here is one on page 16. Here are some more on page 17.

Doctor GALLOWAY. Those are simply changes of punctuation.

Senator DOLLIVER. What is this little clause: "There is permanently appropriated," etc.?

Senator WARREN. We leave that out. On page 23 we leave out the word "or." They put that in, did they, when it was not in before?

Doctor GALLOWAY. Yes.

Senator WARREN. Is there any necessity of having it in?

Doctor GALLOWAY. No, sir.

Senator WARREN. Let us leave it out, then.

Senator PERKINS. The next thing is on page 26.

Senator WARREN. What is this over here at the left on page 26?

Doctor GALLOWAY. That is the clause that we were just discussing, that there is no necessity for.

Senator WARREN. That you leave out?

Doctor GALLOWAY. Yes, sir; that goes out.

Senator WARREN. We have left it out, you mean, in the print?

The CLERK. And you want it to stay out?

Senator WARREN. Yes; you want it to stay out.

Senator PERKINS. What is the next page?

Senator WARREN. Page 27. The estimate is \$1,027,480; they appropriated last year \$946,980, and you give them \$1,006,980. That is only \$21,000 short.

Doctor GALLOWAY. That was an item for the Bethesda farm work. The committee of the House did not grant that, and the Secretary did not want to recommend it.

Senator WARREN. You do not care for it?

Doctor GALLOWAY. No, sir.

Senator WARREN. By the way, where is this Biological Survey matter that was cut out?

Doctor GALLOWAY. We will get to that shortly.

Senator PERKINS. They restored it.

Senator WARREN. Who restored it?

Senator PERKINS. The House.

Senator WARREN. On the floor?

Senator PERKINS. Yes.

(After an informal discussion:)

Senator WARREN. Here is \$2,000 for one officer in charge of records.

The ACTING CHAIRMAN. What line are you on?

Senator PERKINS. Line 12, page 27.

The ACTING CHAIRMAN. Is that an increase?

Doctor GALLOWAY. Yes; that is an increase.

Senator PERKINS. Why have the records increased, Doctor, so that it is necessary to have a \$2,000 man this year and none last year?

Doctor GALLOWAY. We had the same man last year.

Senator PERKINS. But you did not pay him anything?

Doctor GALLOWAY. Yes; we paid him \$1,800 last year, but this is a new place, because this man handles all of our finances; he handles all our accounts.

Senator PERKINS. He is an additional clerk, is he?

Doctor GALLOWAY. He is an additional clerk.

Senator WARREN. Why do you call him an officer in charge of records then?

Doctor GALLOWAY. Because he is something more than a mere clerk in charge of accounts. He has the care of the records of the Bureau. He has the handling of the accounts, the making up of the accounts.

Senator WARREN. Of what—just your own Bureau, the Bureau of Plant Industry?

Doctor GALLOWAY. Yes; just the Bureau of Plant Industry.

Senator WARREN. He does not handle the records of the general Agricultural Department?

Doctor GALLOWAY. Not the whole Department; no, sir.

The CHAIRMAN. We will consider that as adopted, then.

Doctor GALLOWAY. That was recommended by the Secretary, passed by the House committee, and passed by the House.

Senator WARREN. It is simply a matter of giving him \$200 more and letting the \$1,800 place be filled as well?

Doctor GALLOWAY. Yes, sir.

The ACTING CHAIRMAN. In line 15, the appropriation last year was for seven clerks, the estimate was eight, and the House has given eight. I suppose there is no objection to that.

Senator WARREN. They have given all three of those—the last ones.

The ACTING CHAIRMAN. And in the next line there was an appropriation of twelve, the estimate was for thirteen, and they have given thirteen.

Senator WARREN. We have another \$1,800 clerk down there. That business is increasing right along, is it?

Doctor GALLOWAY. Yes.

The ACTING CHAIRMAN. "One clerk, \$1,080."

Senator WARREN. Why do you put it in there? Why do you not say "one clerk of class four?"

The ACTING CHAIRMAN. I suppose that is done this year, and the next year it would go in in this way?

Doctor GALLOWAY. Next year it will go in; yes.

The ACTING CHAIRMAN. If there is no objection to that, it will be adopted.

Doctor GALLOWAY. That will read that way now in the law.

Senator WARREN. Now, you have four clerks down here in line 24. [After making computation.] You have ten extra men on that page, have you not?

Doctor GALLOWAY. Yes, sir.

Senator PERKINS. What kind of a clerk can you hire for \$720 a year?

Senator WARREN. You can hire a million of them—women and boys.

Doctor GALLOWAY. We can hire a typewriter; we start some of our stenographers in at \$720.

Senator WARREN. Here in Washington they can get lots of girls for that salary that board at home. They can not in my country or yours.

The ACTING CHAIRMAN. Here are three notations at the top of page 28.

Senator WARREN. Here are some more clerks, I think. You need all these clerks here, do you?

Doctor GALLOWAY. Yes, sir; most of these people are transferred from lump funds, and we wanted to get them on the statutory roll.

Senator WARREN. Are you cutting down the lump fund accordingly?

Doctor GALLOWAY. It was cut down when we made our estimates in the House.

The ACTING CHAIRMAN. That will appear later, I suppose. The same thing occurs on page 29 in four places.

Senator WARREN. "Three skilled laborers, at \$540 each." You do not put up your own seed now, do you?

Doctor GALLOWAY. Yes, sir.

The ACTING CHAIRMAN. The next item is on page 33, under "Grain investigations." I see that the House, on motion of Mr. Tawney, struck out of the law of last year the words "and for the issuance of certificates of inspection when requested by the consignor or consignee." That was in last year, and went out on motion of Mr. Tawney this year, for reasons which I thought were rather without rhyme or reason, and I would like to have it reinserted. The Doctor here says that it will make no difference in the cost, and that really it is a good thing to have it in there.

Senator WARREN. It is not a matter of money—it is a matter of mode, is it?

The ACTING CHAIRMAN. A matter of administration; yes.

Senator WARREN. You ought to know about grain investigations. I am willing to follow you in that, Mr. Chairman.

The ACTING CHAIRMAN. I think it ought to go in. There would be no harm in putting it in. Just let us see what about this item here: "including rent and the employment of labor in the city of Washington and elsewhere."

Senator WARREN. That is the same, so that they can get around that?

Doctor GALLOWAY. Yes, sir. Either that should go back or the Secretary should have general authority to incur such expenses as we have suggested down in another clause.

The ACTING CHAIRMAN. In the red lines there?

Doctor GALLOWAY. Yes, sir.

Senator WARREN. That is to get around the way they have tied up the District of Columbia, you know.

Doctor GALLOWAY. Yes.

The ACTING CHAIRMAN. Which do you prefer?

Doctor GALLOWAY. I think it would be better, Senator, to put it back just as it was—just as they have dropped it out.

Senator PERKINS. You will get into the new building, Doctor, next year, will you not?

Doctor GALLOWAY. Yes, sir.

The ACTING CHAIRMAN. Then we will reinsert those two provisions in black ink.

Now, then I want to increase that total to \$40,000 instead of \$15,000. I will tell you why, gentlemen. We are starting out now on the business of establishing standards of grain grades, by inspection, through the process of these laboratories. Two laboratories, as I understand, have been established and are working very satisfactorily. It was the intention last year, as I stated before the committee and, I think, before the Senate also, that this year we would ask for the establishment of laboratories at some interior points—the great wheat markets of Superior, Duluth, and Minneapolis—and I think that there are at least two other export points where there should be laboratories. The Department seems to agree with that view.

Senator DOLLIVER. What good has this done?

Senator WARREN. We have not got started in it yet.

The ACTING CHAIRMAN. We are just starting it now. It is going to do a great deal of good. If you will read the letter that was written to me by the Secretary of Agriculture, you will see it very forcibly.

Senator PERKINS. Who is attending to this, Doctor, particularly?

The ACTING CHAIRMAN. This comes under the Doctor's Bureau.

Senator PERKINS. I know; but have you got some experts?

Doctor GALLOWAY. Yes, sir.

Senator WARREN. How do you come to keep your estimates down so low? Why did you not get your estimates higher?

Doctor GALLOWAY. We had only two laboratories established.

Senator PERKINS. You can not get a cheap man to perform that work?

Doctor GALLOWAY. No.

Senator PERKINS. I know something about grain; I have built two or three flour mills myself.

Doctor GALLOWAY. We looked around very carefully, and we wanted to get a man that was thoroughly familiar with the whole grain business.

Senator DOLLIVER. Is this intended to arm the farmer with the necessary weapons to beat the elevator men?

The ACTING CHAIRMAN. It is to enable the farmers to get their just dues—not to beat them, but to get their just dues.

Senator DOLLIVER. I mean, to beat the claim that they set up as to a low grade of wheat?

The ACTING CHAIRMAN. Yes, sir; in corn as well as in wheat. It is an admirable thing.

Senator DOLLIVER. I do not notice any stir around in the corn country about this.

The ACTING CHAIRMAN. That is simply because they have not gotten onto it yet.

Doctor GALLOWAY. There is a lot of stir abroad, though, about the matter.

The ACTING CHAIRMAN. I will say that I think the establishment of five additional laboratories would give us a sufficient number of laboratories to go on and establish a standard of grain grades.

Doctor GALLOWAY. The whole condition of the grain business is about like this: It would be like selling cloth in New York with one length of yardstick, selling the same kind of cloth in Washington with another length of yardstick, and selling it at some other city with another length. There is absolutely no standardization about it. What we are trying to do is to fix standards of the grades; to say what No. 2 corn shall be in color, in moisture content, and in amount of dirt present, and so on. We can do that through these new devices that we are working on. We have a device now that will enable us to determine the moisture in grain in twenty minutes, whereas it used to take three or four hours.

The ACTING CHAIRMAN. And sometimes longer?

Doctor GALLOWAY. And sometimes longer. To cite a case in point: Recently a man in Ohio shipped a cargo of corn to Baltimore. It was going to be graded as No. 3 corn. He appealed there to the corn commission of the chamber of commerce, and they appealed to us. It was on the question of moisture content that it was graded down.

They examined it and stated that it had 18 or 20 per cent of moisture. It was turned over to our laboratory and in twenty minutes we determined that it had only 15 per cent of moisture, which lifted it to No. 2, and the man got the difference in the price.

(After a further discussion among members of the committee:)

The ACTING CHAIRMAN. These words, "and maintain," in line 4, ought to go in, too?

Doctor GALLOWAY. Yes; we must maintain the laboratories.

Senator PERKINS. You propose to increase the appropriation to \$50,000?

The ACTING CHAIRMAN. To \$40,000 instead of \$15,000. That will enable the Secretary to establish five more laboratories, and I think that will be enough.

Doctor GALLOWAY. We have had requests for about ten, but five will be enough for a while.

The ACTING CHAIRMAN. Now, there is a word in line 16 inserted by the House—"for the distribution of valuable seeds." The word "valuable" is inserted, you will observe, by the House. These are for valuable seeds.

Senator WARREN. That is the same old proposition. They have always been for "valuable seeds."

Senator SIMMONS. Mr. Chairman, I want to ask Doctor Galloway a question about the seed business. I have talked with a good many Members of the House, and the gravamen of all the objections I have heard to the new proposition is that these rare and uncommon seeds purchased by the Department are sent out only to experimenters by the Department itself. I am just making this suggestion tentatively. I am not committed to any suggestion of the kind myself. Would it not be feasible to buy these seeds and use the same amount of appropriation that we now have in our bill for the purchase of these uncommon and rare seeds and let them be distributed by the Members and Senators just exactly like common seeds? I think that if that is a feasible scheme it would remove very many of the objections to the change in the law, and I believe, so far as the agricultural interests of the country are concerned, that they would be very much more subserved by the distribution of a small quantity of good seeds, uncommon seeds, and rare seeds than by the distribution of a large quantity of common seeds.

The ACTING CHAIRMAN. I think putting in this word "valuable" is right in that direction, Senator Simmons.

Senator SIMMONS. It is the method of distribution that I am getting at. I say that in my judgment a large part of the objection comes from the fact that under this—not under the provision as put in by the House, but under the provision the committee reported to the House, Congressmen are not permitted to distribute these seeds at all. They are only distributed through the Agricultural Department.

Doctor GALLOWAY. No; they were to distribute them, Senator.

Senator SIMMONS. Who—the Congressmen?

Doctor GALLOWAY. Yes, sir.

Senator SIMMONS. As I understood, they were simply to advise with you in regard to it.

Doctor GALLOWAY. That is the only way in which those seeds could be handled, for the reason that it would be impracticable for us to

put them up in any mechanical way in any definite quantities, because we would not know how many we would have. In the case of these ordinary seeds it is a stock thing, and we can always tell just how many we are going to have. It is a matter of determination from one year to another. But in the case of these valuable and rare seeds, one year we might have a considerable quantity of a good thing and another year we might have very little of it and in another year nothing at all, so that we would have to reserve—

Senator SIMMONS. Would not the amount of rare seed that you could buy be dependent upon the amount of money that you had to expend for that purpose?

Doctor GALLOWAY. In a measure, it would; but the kind of seed would altogether depend upon our ability to get that particular kind of seed in that particular year. Let us take a concrete case: Take the whole \$242,000 which we now expend under three headings—about \$135,000 for the ordinary garden seed, every-day garden seed; about \$63,000 for these good varieties of seeds of cotton and cowpeas, forage crops, and things of that kind, and about \$37,000 for the introduction of things from foreign countries. Now, if we spend \$135,000 for novelties—new things—we can not give each Member more than 350 or 300 packages, instead of 12,000. That is the way it would run. On the other hand, if we tried to give the Members field seed, cotton seed, it would not be of any use, you know, for me to send you a quart of cotton seed or a quart of wheat or a quart of oats. We would have to send you a bushel.

Senator SIMMONS. But you are now sending me a peck of cotton seed of the rare variety.

Doctor GALLOWAY. Yes; we will send you a peck; but that is not enough. We would have to send at least enough to give the farmer something that he could plant.

Senator SIMMONS. The only difference, then, would be that the number of packages that each Member would have for distribution would be greatly reduced?

Doctor GALLOWAY. It would be less. It costs us about as much for the 80 packages of cotton seed of the fine grade as it would cost us for 4,000 or 5,000 of the ordinary cotton seed.

Senator SIMMONS. I would rather have the 80 packages of fine grade cotton seed than the 4,000 or 5,000 of the common kind, because our farmers have the common kind already, and they do not need it and they do not appreciate it.

Doctor GALLOWAY. The majority of the Members of the House, though, and the other Members, want the vegetable seeds. There is no question about that. They want these numbers of packages of vegetable seeds; and the only way we can get the numbers of packages is to take the ordinary seed. Now, if instead of having \$242,000 we had \$500,000 or \$800,000, we could get as many packages of these good grades as we do of the cheaper things.

The CLERK. Is the market big enough?

Doctor GALLOWAY. Yes; if we worked two or three years in advance we could grow them.

Senator LATIMER. The answer to that, from my standpoint, is that if you give us a few packages of these improved varieties in different neighborhoods they will get them and spread them around in a little while.

Senator SIMMONS. Suppose you give me a package of cotton seed of an improved variety. I send one package to a given neighborhood; that man plants it, and he makes enough from this seed to supply his neighbors next year; and in a short time the benefits of that seed are distributed in that neighborhood.

The ACTING CHAIRMAN. Well, gentlemen, are we agreed in leaving in that word? I suppose it does not hurt.

Senator LATIMER. I think we have fought out the seed matter to a finish. I think we had better let it go.

The ACTING CHAIRMAN. Now we go to page 34.

Senator SIMMONS. I want to say for myself that if it is not practicable to distribute these seeds in any way except through the Agricultural Department and to actual experimenters, I would be in favor of the old law rather than to go to that. But if it is practicable to distribute these rare seeds through the Members of Congress—

Doctor GALLOWAY. It is perfectly practicable.

Senator SIMMONS (continuing). Although it greatly reduces the number of packages, I am in favor of that.

Senator PERKINS. You are going to do that, Doctor, I understand?

Doctor GALLOWAY. It is perfectly practicable to do that, Senator; but the Members of the House have expressed themselves time and time again to the effect that they did not want a fewer number of packages; they want these large numbers of packages.

Senator SIMMONS. But they did not do it, Doctor, in this last debate. I have not read it all, but as far as I have gone through it their objection was that the Agricultural Department sent them out, and sent them out only to actual experimenters; and a man to get any had to sign a certain sort of agreement with the Agricultural Department. They did not pass on the question which I am raising, which is as to whether this proposition to send out these rare seeds, though the number they might send out might be greatly reduced, would not be satisfactory. I do not think they did. I do not think that question was discussed. It was not raised, and therefore not discussed.

The ACTING CHAIRMAN. On page 34 the word "field" is stricken out. There is a recommendation by the Department that that be stricken out, Doctor.

Doctor GALLOWAY. We distribute field seed anyway; and the object of putting that in there was to limit the Members in the number of packages. Mr. Sheppard, of Texas, put that in. We think it ought to go out if the Members want the present number of packages—

Senator LATIMER. Will you call attention to that again, please?

Doctor GALLOWAY. On page 34 the word "field" was put in. We distribute field seed anyway. Cotton seed is field seed. There is no use of putting that in.

Senator DOLLIVER. It is all vegetable seed.

Senator LATIMER. I move that that go out.

Doctor GALLOWAY. The idea was to require us to put up these seeds in small packages and to greatly reduce the number.

The ACTING CHAIRMAN. And we correct the language down there by striking out "to the Postmaster-General."

Doctor GALLOWAY. That is just an error of the print.

The ACTING CHAIRMAN. There is nothing on page 35. On page 36 the House committee provision went out, of course, and the House put in the provision we have been considering. So we will pass that.

The next is the Forest Service. We will let the question of salary go over until we consider all the salaries.

Senator SIMMONS. Mr. Chairman, may I ask Doctor Galloway just one more question about that salary matter, as he will not be here, probably, when we take it up again? Has the salary of the Chief of the Bureau of Forestry ever been raised at all? I know that we have been raising the others.

Doctor GALLOWAY. No, sir.

Senator SIMMONS. How long has that been at \$3,500?

Doctor GALLOWAY. It was raised \$500 about three years ago. Before that he had \$3,000.

Senator PERKINS. I see a notation here that Mr. Pinchot wants the salary of his assistant forester, Mr. Price, raised to \$3,500.

The ACTING CHAIRMAN. I do not think we want to do that.

Doctor GALLOWAY. That is not in the estimates this year.

The ACTING CHAIRMAN. I would be opposed to that.

On page 37, line 16, Mr. Pinchot asks for \$1,500. It reads here, "one photographer, \$1,400." Why should we increase that? Does anybody know?

Doctor GALLOWAY. It was not estimated for.

Senator PERKINS. Is that on page 38?

The ACTING CHAIRMAN. Page 37, line 16. Mr. Pinchot asks for an increase from \$1,400 to \$1,500. I do not think we can do that.

Senator DOLLIVER. No; not if it is not estimated for.

The ACTING CHAIRMAN. And then, on line 18 here, Mr. Pinchot wanted two or three lines stricken out, and then to substitute for lines 18 to 20, "two messengers, at \$900." They would be in the same class, and I do not think we can do that. So we will let that go.

Now, at the bottom of page 38, what does that pertain to?

Doctor GALLOWAY. That whole thing was enacted into permanent law last year by the word "hereafter," and it is not necessary to do it any more.

The ACTING CHAIRMAN. It is not necessary?

Doctor GALLOWAY. No, sir.

The ACTING CHAIRMAN. So we will leave it as it is?

Doctor GALLOWAY. Leave it all out.

The ACTING CHAIRMAN. Leave out the paragraph?

Doctor GALLOWAY. Leave out the whole paragraph down to line 13, on page 39.

The ACTING CHAIRMAN. You do not mean to strike out the whole paragraph, do you?

Doctor GALLOWAY. Yes, sir; the whole paragraph.

The ACTING CHAIRMAN. Beginning on line 24?

Doctor GALLOWAY. Beginning on line 24, page 38, down to and including line 13, on page 39.

The ACTING CHAIRMAN. You want to strike that paragraph out?

Doctor GALLOWAY. Yes, sir.

Senator DOLLIVER. As it is already existing law?

Doctor GALLOWAY. As it is already existing law.

The ACTING CHAIRMAN. That is easily settled. Now, what is this posed insert which went out on a point of order in the House, as

not being in last year? I do not think we care to take that up; do we?

Doctor GALLOWAY. That was recommended by the Secretary. It went out on a point of order, and it simply directs the Secretary and enables him to specifically outline the boundaries of these reserves and give them names, for administrative purposes. There was a great deal of discussion on that subject in the House, and it went out on a point of order.

Senator DOLLIVER. Can he not do that anyway?

Doctor GALLOWAY. No; he can not do that.

Senator PERKINS. I do not see any objection to that, Mr. Chairman.

The ACTING CHAIRMAN. I do not, either.

Senator DOLLIVER. Where does that go?

Doctor GALLOWAY. That would come in on line 15, after the word "forests."

Senator DOLLIVER. I move that that be added there.

The ACTING CHAIRMAN. All right. Then that word "hereafter" does not want to go in?

Doctor GALLOWAY. No; because it is in the clause. The House reported that little clause, and it went out. The House committee reported it, and it went out on a point of order raised by Mr. Mondell.

The ACTING CHAIRMAN. That word "hereafter" does not want to go in, does it?

Senator DOLLIVER. Now, on page 40, there seems to be another insertion.

The ACTING CHAIRMAN. What about that word "hereafter," Doctor?

Doctor GALLOWAY. It should go in. It is not in here.

The CLERK. Yes; that should go in.

The ACTING CHAIRMAN. "And hereafter the Secretary of Agriculture may divide all lands, etc."

Doctor GALLOWAY. That is all right—oh, yes, "and hereafter" again.

The ACTING CHAIRMAN. Shall that go in there?

Doctor GALLOWAY. Yes.

The ACTING CHAIRMAN. All right. Now, on page 40, here is a whole lot of material. Let us see about this. This item in line 2 went out on a point of order. A similar item was in last year. This was in last year?

Doctor GALLOWAY. That was put in by this committee last year, after a good deal of discussion. That is the point Senator Perkins was making a while ago, in regard to the use of moneys, how they should be turned back into the Treasury. It went in, and went out on a point of order this year.

The ACTING CHAIRMAN (reading):

And hereafter all moneys received as contributions toward cooperative work in forest investigations and in the protection and improvement of the national forests shall be covered into the Treasury and shall constitute a special fund, which is hereby appropriated and made available until expended as the Secretary of Agriculture may direct, for the payment of the expenses of said investigation, protection, and improvement by the Forest Service and for refunds to the contributors of amounts heretofore or hereafter paid in by them in excess of their share of the cost of said investigations, protection, and improvement.

Senator PERKINS. That ought to go in; there is no question about that.

The ACTING CHAIRMAN. That ought to go in if we are going to insert another clause over here after a while.

Senator PERKINS. I move, Mr. Chairman, that that be inserted in this bill. It went out on a point of order.

The ACTING CHAIRMAN. That will be the order. Now, let us see. The next one is in line 6, after the word "forests." The Secretary recommends that insert—"and in conducting experiments and investigations in the city of Washington and elsewhere."

Doctor GALLOWAY. That is the same clause, to straighten us with the Treasury Department.

Senator DOLLIVER. I move that that be added.

The ACTING CHAIRMAN. That will be the order if there is no objection.

Now, on line 15 it is proposed to add, after the word "fixtures," **these words:** "Technical books and technical journals for officers of the Forest Service stationed outside of Washington."

Doctor GALLOWAY. It is necessary to furnish those men with these technical papers in order to keep them abreast of the times and the work of this Forest Service.

The ACTING CHAIRMAN. Where does that go in—after the word "books?"

Doctor GALLOWAY. It goes in after the word "books."

The ACTING CHAIRMAN. All right. Here is something that went out on a point of order, at the end of line 4. What do we want to do with that, Doctor? It went out on a point of order in the House.

Doctor GALLOWAY. That is the part about an official seal. We do not want a seal. We are going to use the seal of the Department. We do not need that. That can stay out.

The ACTING CHAIRMAN. Then we will leave that out if there is no objection.

Doctor GALLOWAY. They had ordered an official seal for the Bureau, and the Secretary persuaded them that the Department seal would be sufficient.

The ACTING CHAIRMAN. Of course these totals will be cast up?

The CLERK. Yes.

The ACTING CHAIRMAN. Now, down here Mr. Pinchot wants to borrow some money. The House agreed to loan him \$500,000, and he wants it made \$2,000,000. I think \$1,000,000 would be enough. I talked it over with Senator Proctor this morning. If there is no objection, we will put it at \$1,000,000. What do you say, Senator Dolliver?

Senator DOLLIVER. What does he want to do with this?

The ACTING CHAIRMAN. You know we provide that the receipts from the sale of timber on these forest reserves shall go into a special fund for use in administering the forests. Mr. Pinchot wants to borrow some money, and it is to be repaid to the Department when he takes in enough from the sale of timber. That is my understanding of the situation.

Senator DOLLIVER. Does he want to spend what he takes in and this, too?

Senator SIMMONS. That is for improvements upon the reserves, is it not?

Doctor GALLOWAY. Yes, sir; it is to make the reserves workable.

Senator DOLLIVER. The House seems to have put in \$500,000.

The ACTING CHAIRMAN. They recognized the justice of the demand and put in \$500,000, and Mr. Pinchot says he ought to have \$2,000,000.

Senator LATIMER. What is he going to do with all that money?

The ACTING CHAIRMAN. It is for administering these reserves. This is a mere loan, as I understand it, Doctor?

Doctor GALLOWAY. Yes, sir.

Senator DOLLIVER. I do not see anything about that provision which describes it as a mere loan.

The ACTING CHAIRMAN. Here is the House provision: "And there is hereby appropriated, out of any money in the Treasury not otherwise appropriated, the sum of \$500,000." "To be immediately available." That ought to go in there?

Doctor GALLOWAY. Yes; "and expended as the Secretary of Agriculture may direct."

The ACTING CHAIRMAN. "And expended as the Secretary of Agriculture may direct." Then these words, "to construct permanent improvements," ought to go in there?

Doctor GALLOWAY. Yes, sir.

The ACTING CHAIRMAN (reading):

For the proper and economical administration, protection, and development of the national forests: *Provided*, That hereafter a detailed estimate of the services herein appropriated for shall be submitted to Congress with the other estimates for the Department of Agriculture.

Senator DOLLIVER. That is the queerest-looking loan I ever heard of.

The ACTING CHAIRMAN. Yes; I was mistaken in saying that it is a loan. It is a direct appropriation.

Doctor GALLOWAY. Yes, sir; but Mr. Pinchot is turning into the Treasury now in the neighborhood of eight or nine hundred thousand dollars a year.

The ACTING CHAIRMAN. Yes; that is true.

Doctor GALLOWAY. And that amount is increasing, and he estimates that in five years he will be turning in as much as the Bureau is now expending. This is such an important matter that I would suggest that if the committee has time it hear Mr. Pinchot himself on the subject.

The ACTING CHAIRMAN. You suggest that we hear Mr. Pinchot on it?

Doctor GALLOWAY. Yes, sir.

Senator LATIMER. I would like to know what he is going to do with this million dollars.

Senator PERKINS. I suggest that we pass it and hear Mr. Pinchot. (It was directed that Mr. Pinchot be summoned before the committee in connection with the above item.)

The ACTING CHAIRMAN. Now comes the Bureau of Chemistry.

Senator SIMMONS. Mr. Chairman, before we leave the other bureau I want to offer (and I do not want to do it right now) an amendment concerning my southern Appalachian Mountain reserve.

The ACTING CHAIRMAN. You offer it and have it pending.

Senator SIMMONS. I do not want to offer it now, but I want to reserve it until we take this matter up in executive session.

The ACTING CHAIRMAN. You will have that ready for us to-morrow afternoon, will you?

Senator SIMMONS. Yes.

The ACTING CHAIRMAN. All right. Then we will pass the Forest Service. Now we come to the Bureau of Chemistry. The question of salary comes up there, too. Doctor, here is an estimate of \$1,800 for what—for one chief clerk?

Doctor GALLOWAY. For one chief clerk.

The ACTING CHAIRMAN. What do you think about that?

Doctor GALLOWAY. The Secretary does not want to ask for that.

The ACTING CHAIRMAN. We will leave that as it is?

Doctor GALLOWAY. Leave it as it is.

The ACTING CHAIRMAN. All right; then it will stand, and all the rest will stand here, I suppose. Now, let us see. Here at the top of page 42 is the last year's appropriation for three clerks; the estimate is for four, and the House put in seven.

Doctor GALLOWAY. That is in view of the fact that they have put so much new work on that Bureau. They have to have more clerks. You see, the administration of the whole pure-food measure has come on the Bureau of Chemistry.

Senator DOLLIVER. Where does this controversy come in about the arbitrary fixing of standards by the Department?

Doctor GALLOWAY. That is out.

Senator DOLLIVER. We want to put that back in, do we not?

Doctor GALLOWAY. The Secretary says he has the right to fix that in the pure-food law, and he can do that without having it in here.

Senator DOLLIVER. I felt that that was a very important thing, but I suppose that is probably—

Doctor GALLOWAY. I have that right here: "To enable the Secretary of Agriculture to investigate the character of food preservatives," etc. [reading paragraph referred to].

Senator DOLLIVER. But did he not have to cooperate with a lot of other people in his work under the pure-food law?

Doctor GALLOWAY. Yes, sir. We have a clause to that effect in the back of the bill, and the Secretary can cooperate anyhow.

The ACTING CHAIRMAN. Doctor, you think those clerks are all needed in that Department, do you?

Doctor GALLOWAY. Yes, sir.

The ACTING CHAIRMAN. Then we will pass them over. I think myself, in view of the extra work they have, that you ought to have a few more clerks. Now, on page 43, after the word "foods," in line 14, an amendment was offered and went out on a point of order. It was in last year's law. What do you say about that, Doctor?

Doctor GALLOWAY. What is that?

The ACTING CHAIRMAN. "To enable the Secretary of Agriculture to investigate the character of food preservatives," etc.

Doctor GALLOWAY. That is the one we were discussing. The Secretary is of the opinion that that can just as well stay out, because he has authority to do it, anyway. Yes; that can go out, too.

Senator DOLLIVER. I want to look that up a little. We are going to adjourn now, anyhow. Let us not take that up until you come back. I think it is very important.

The ACTING CHAIRMAN. We will not conclude, then, on the Chemistry Bureau, but will adjourn now.

(The committee thereupon adjourned until to-morrow, Wednesday, February 6, 1906, at 2.30 o'clock p. m.)

GOOD ROADS.

COMMITTEE ON AGRICULTURE AND FORESTRY,
UNITED STATES SENATE,

Washington, D. C., Wednesday, February 6, 1907.

The committee met at 2.30 o'clock p. m.

Present: Senators Proctor (chairman), Hansbrough, Warren, Dolliver, Burnham, Perkins, Simmons, and Latimer.

STATEMENT OF SAMUEL HILL, ESQ., OF SEATTLE, WASH.

The CHAIRMAN. We will hear you, Mr. Hill.

Mr. HILL. Mr. Chairman and gentlemen of the committee, I come before you to-day in a voluntary way; no one has asked me to come and make the statement which I shall now make.

I have the honor to be president of the State of Washington Good Roads Association, and for some twenty-five years have interested myself in this work.

The appropriation bill (H. R. 24815) as it is before you, gentlemen, to-day, provides for the expenditure of a total sum of \$57,000. As that bill was originally drawn and presented it carried an appropriation of a few dollars less than \$101,000. These items which are here in Senator Piles's amendments are simply replacing the items in the bill as originally presented.

Senator WARREN. How do the items of the bill correspond with the estimates?

Mr. HILL. The estimates are the same in each case as in the bill.

I would like to trespass a moment on the time of the committee to state what seems to me to be a most important matter. The Office of Public Roads of the United States Government is at this time, I believe, in thoroughly competent hands. During the last year I have had occasion to communicate several times with that Office, and have several times come here from the State of Washington to ascertain what work was being carried on in that Office. The Office is simply an educational office, seeking to show, through the distribution of literature and by lectures given by competent engineers and by the building of specimen roads, how to prosecute the art of road making. I doubt if any gentleman in this room appreciates the great loss which annually occurs by reason of bad roads.

If the Senator from California (Mr. Perkins) will pardon me—in your State, sir, are perhaps to-day, on the whole, as good roads as any in the United States. The county of Los Angeles, Cal., this year has appropriated alone \$3,000,000 for the building of good roads.

Senator PERKINS. The counties of Santa Clara and Alameda have also made appropriations.

Mr. HILL. Yes; but I name the county of Los Angeles simply as having made the largest appropriation of any county in the State.

In the State of the Senator from North Carolina (Mr. Simmons)—if I may say so, my State—great advance has been made. Over 1,200 miles of thoroughly macadamized roads have been built entirely by convict labor. When you began your work of reform in that State, 30 cents a day was the cost of keeping, housing, clothing, guarding

feeding, and furnishing tobacco to these convicts. By a wise law enacted in your State, when the convicts were placed on the roads and housed in temporary houses, the cost was reduced from 30 cents to 25 cents a day, so that the entire labor of convicts was used and 5 cents a day was saved to the State. Many of your counties, notably Guilford County, have led the advance in the way of modern macadam road building. I had occasion to visit Guilford County a year ago and found that that county—not a rich county—had bonded itself in the sum of \$50,000 per year for a period of three years, and that sum has been expended in the building of roads in that county.

In your State, Senator Proctor, as I am sure you are aware, in the year 1892 the first law was enacted looking to highway improvements. I have not before me the figures for recent years, but in 1901 your State made an appropriation of \$88,619 for highway improvements in that year.

The CHAIRMAN. I can tell you that the legislature of Vermont recently made a liberal appropriation and provided for county supervision. We take care of our own roads and want the National Government to let us alone. That is all we ask.

Mr. HILL. You are fortunate in having in your State much valuable material for the construction of roads, as well as for other important structures.

The CHAIRMAN. Yes; they construct permanent roads in connection with the towns, and I believe the law requires each town to contribute an amount equal to the sum contributed by the State.

Mr. HILL. The State of New York, where the agitation was begun in the year 1895, made an appropriation of \$50,000 for that year. That money was wisely expended, and last year the State voted to bond itself in the sum of \$50,000,000 on condition that an equal amount be raised by the several counties. That amount was raised by the counties, so that there now stands available in that State an annual sum for the construction of roads amounting to \$10,000,000 a year for ten years.

I merely mention these facts in order that you may see the great stride that has taken place in highway improvement.

There are approximately in the United States 2,500,000 miles of highways. There are approximately in the United States, sidings and all, 250,000 miles of railways, or, in round numbers, you can say there are ten times as many miles of public highway as there are miles of railroad in the United States.

Now, gentlemen, I put this to you in this form: Each State owns the traffic in that State. The United States, if you please, derives benefit from the traffic of all the several States. When a railway is built in a State it is for the purpose of accommodating the traffic of perhaps only a portion of that State. But over the highways passes, if you please, almost every item of traffic in the United States before it finds its way to a railway.

The National Government I feel has taken a very wise course in establishing this office. Some years ago some of us were enthusiastic enough to believe that it was wise to ask the General Government for an appropriation to aid the several States. Practical experience has since taught us that there are not to-day in the United States a sufficient number of competent highway engineers to carry out a work of that kind, if it were inaugurated. But the Government is

now maintaining an educational office, whence go forth inspectors, instructors, competent engineers, who show the people of the several States how to build roads. In other words, to make a comparison with the railways, the Government of the United States, through its heads of Departments, is encouraging the standardizing of a system of highways. Fancy what it would be, if you were riding over a railway, to find one section laid out by one man according to his own theory as to rails, ties, grades, and bridges, and then pass on to other sections constructed of an entirely different type or character by a man who had entirely different ideas. Throughout the United States, the several counties in the West and in the different political subdivisions of States in the East, they had been in the habit of experimenting year after year with different styles of roads. But now, through the efforts of the Department in Washington, there is going to be established one standard system of macadamized roads, recognized everywhere in the United States as being the best known and the cheapest possible to construct.

I had planned that Mr. J. H. MacDonald, highway commissioner of the State of Connecticut, should be here and address you, but I had thought the meeting was not to be called until the first of next week. So that explains to you why he is not here to-day. In that State of Connecticut they have spent in the last ten years upward of \$3,000,000; and to-day Connecticut, small as it is, has one of the best systems of highways in the country, and its method of building is that recommended by your Department here in Washington.

Last year it was thought desirable in the far West that we might have some benefit from the Department in the matter of instruction about highway improvement. The appropriation made last year was very small. There was no money to pay the cost of transporting men and machinery and other expenses of the office. I took the matter up with the railroads west of Chicago, and through their kindness the Government was enabled to transport free the machinery necessary to construct specimen miles of highway in several of the Western States, notably in Oregon, Washington, Idaho, and one in California.

Senator PERKINS. In California there was an oil road constructed out of Sacramento.

Mr. HILL. And by the by, that oil treatment has proved most valuable.

Senator HANSBROUGH. They constructed 1 mile in North Dakota, and it is the poorest piece of road in the State.

Mr. HILL. Was that last year?

Senator HANSBROUGH. No; it was about three years ago.

Mr. HILL. I want the stenographer to note that Senator Hansbrough says it was not last year. To make that clear, Senator Hansbrough, there was organized in this country a so-called National Good Roads Association, presided over by Mr. W. H. Moore, of the city of St. Louis, and by a Mr. Richardson, living in Nebraska. We had a meeting at Portland, Oreg., at the close of the Portland fair, at which meeting Senator Piles was present. The accusation was made at that meeting that they had collected in the city of St. Louis the sum of \$45,000, and that in the several towns they had collected sums varying from \$250 to \$500, and they came to the Portland fair on a car bearing a large sign "The National Good Roads Train."

It was that train, Senator Hansbrough, and those men who built your mile of road in North Dakota some years ago.

Senator HANSBROUGH. It was not the fault of the men who built the road, but simply because of the condition of the land in my State, which is such that you simply can not build a road that will stay.

Mr. HILL. But you can not change that condition.

Senator HANSBROUGH. No.

Mr. HILL. These facts were brought home to those men, and Senator Piles will at least recollect that the men were deposed from the chairmanship and secretaryship of the convention, and Judge Scott of the Oregon association was placed in charge. The whole matter was written up in the public press, and from that time until the present those men have not dared to open their mouths on this subject.

The CHAIRMAN. They came into our country and took \$400 or \$500. As soon as I heard of them I wrote here to Washington, and they were very soon exposed. But they got \$400 or \$500 and gave a very pleasant talk to the people, and that was all, so that it was rather expensive as a luxury.

Mr. HILL. I want to say in that connection, Senator Proctor, that those men did an immense amount of damage to us all through the West. The National Association, as such, is not now affiliated with the associations in the several States.

Senator DOLLIVER. I do not think they constructed any roads in Iowa.

Mr. HILL. No, sir; but that was under contemplation.

Senator DOLLIVER. There is a road from the city limits of Fort Dodge over to the Norwegian cemetery that is a good subject for experimentation.

Mr. HILL. I see no reason why the experiment should not be tried there.

The CHAIRMAN. Personally I do not know why you should worry about the fate of this appropriation when the Senator from South Carolina (Mr. Latimer) is a member of the committee.

Mr. HILL. I was not aware until I came here to-day that he was a member of the committee. I live some distance from the seat of government, and my Senators do not always keep me informed.

As I say, in the States of Washington, Oregon, and Idaho, and in some of the other Western States steps were taken and specimen miles of road were built. The railways furnished the transportation, and also carried the machinery free. But unfortunately, as members of the committee are aware, it is now the law that no free transportation can be sought or granted over the railways, and consequently those of us who live in North Dakota and farther west feel somewhat handicapped in any attempt to come to Washington to ask recognition, as the expense would prevent the office sending out lecturers to us.

The CHAIRMAN. I am very glad you have exposed those frauds.

Mr. HILL. I should be glad to send you a full statement of the matter, written by Mr. Cowen.

Senator SIMMONS. There is great activity in road building in my State. Three or four counties have levied assessments, amounting to probably 25 cents on the \$100 worth of property, for this work.

When this work was going on in probably half a dozen or dozen counties of my State I went to see Mr. Page for the purpose of getting some information about the details of constructing these roads, so as to properly advise the county authorities in the matter, but he had not one man he could detail for that work. One man could probably have spent a week or ten days profitably in each county. Do you not want to employ more men?

Mr. HILL. That is the object.

Senator PERKINS. How much do you want?

Mr. HILL. We want \$101,000.

Senator WARREN. That is the estimate of the Department?

Mr. HILL. Yes, sir. The amount has been cut down to \$57,000, but it must be remembered that at that time there were only six men for the entire United States.

Senator SIMMONS. In one county in my State, where a large amount of money was expended, we had to delay nearly a month before we could get a man to give us necessary instruction.

Mr. HILL. I thank you, Senators, very much for your kind attention, and I hope you will pardon me for occupying so much of your time.

STATEMENT OF HON. WILLIAM C. ADAMSON, M. C.

Mr. ADAMSON. Senator Clay sent me word to the House that he had arranged for a few minutes' hearing for me to-day.

Senator WARREN. On the subject of good roads?

Mr. ADAMSON. No, sir; on agricultural education. My State has taken advanced steps in the way of providing for agricultural education. The State has appropriated a good deal of money for agricultural colleges, and also for branch schools in each Congressional district. The State has provided a reasonably large fund, considering our financial ability, for conducting those schools each year, and I have with me one copy only of the rules and regulations, the curriculum, the whole prospectus and arrangement for the establishment of those schools. I should be glad to have you distinguished Senators examine it, and commend it to your attention. I will hand this one copy to the chairman, in order that you may look at it.

Senator DOLLIVER. Is there a bill pending?

Mr. ADAMSON. Yes, sir. I introduced a bill in the House too late for the House to take action upon it, and Senator Clay introduced it in the Senate. Senator Clay will be glad to inform you about that bill. I took the matter up with the Secretary of Agriculture, who is with me, with a view to securing some aid in the way of scientific research and general information to help inaugurate those schools.

The truth is that no matter how much we contribute, no matter how bad the work is, or how excellent, we would not know how to find scientists and experts, not for technical schools, but for arranging to inaugurate these schools to which I refer. Of course we must arrange some general plan which will be fair to all, as well as constitutional. The best scheme I could devise, and which I understood met with the approval of the committee, at least met no antagonism, proposed to operate in connection with the appropriation for experiment stations. So I introduced a bill providing that each year the Gen-

eral Government appropriate in detail, as set out in the bill, the sum of \$2,500 to each substation, it being my purpose that each State should then create a subexperiment station in connection with the college. The only other condition to making that appropriation available being that the State should pay a like sum for the same purpose, so that at each school in my State there would be a substation to which \$5,000 would be applicable each year, half to be paid by the General Government and the other half by the State. That is, in brief, my plan.

Of course if every State in the Union would inaugurate these schools in the Congressional districts the whole amount of money would be stupendous; yet if the Congressional appropriation were to be connected with a like amount from every State in the Union the benefit would be diffused, and there would be nothing lost, and there would be great gain in general agricultural education. Senator Clay is going to ask you to report that bill favorably, and I should be glad if the people of my State can be enabled to secure the benefit of this expert knowledge and research at the outset by the installation of these schools.

Senator PERKINS. The president of the University of Georgia was here and advocated an increase in the appropriation for this very purpose, I think.

Mr. ADAMSON. All I know about that is what I gathered from a brief newspaper account of his speech, from which it appeared that he was advocating experiment stations.

Senator PERKINS. It was for this very purpose.

Mr. ADAMSON. I am glad to hear it.

The CHAIRMAN. There are two bills before us providing for an increase of the annual appropriation to colleges. President White, of your State, was before us the other day and laid a good deal of stress upon the subject of education in other schools and claimed that this addition for the colleges would enable them to aid education in schools of the lower grades, the common schools.

Mr. ADAMSON. Yes; there are, of course, various ideas on these subjects, great divergence of opinion.

The CHAIRMAN. If the appropriation for the colleges were increased, would it not have the effect to aid agricultural education generally?

Mr. ADAMSON. I do not know, Mr. Chairman. I did not hear Mr. White's views on the subject. It has been our idea to avoid, if possible, the diversion of any fund now going to the experiment stations of Georgia or the general station. I have no objection if it can be fairly and reasonably done. The only expense or loss would be that attendant upon the collection and distribution of the amount appropriated to all colleges. Our idea was not to antagonize anybody else, but we felt it our duty to do all we could to secure a fair appropriation for what we need in this exact emergency and perhaps at the same time confer benefits upon others who are doing something for themselves; this upon the theory that the gods help those who help themselves. When the agricultural people of Georgia were handed a million dollars for agricultural education just at this time, I thought it gave me reasonable encouragement to ask for this boon to give us the benefit of the Government's superior ability to furnish

us opportunities for scientific and agricultural research and make it applicable to these schools.

Aside from the bill which Senator Clay and I have been urging, I have this suggestion to make: On page 61 of the bill as it came from the House appears the provision for \$5,000 to be used by the Secretary for general purposes. Under that provision in the existing law the Secretary has already rendered us great assistance.

The CHAIRMAN. What do you propose to add to that?

Mr. ADAMSON. There is some language here that might be necessary to broaden the purpose, but the main thing is to change 5,000 into 20,000. I want to strike out 5,000 and make it 20,000, so that the Secretary shall be authorized to expend \$20,000 for these general purposes therein enumerated, so as to enable him to confer a great benefit upon the few enterprises now endeavoring to make a start in our State.

Senator PERKINS. As you want it, it will read:

Provided, That twenty thousand dollars of this sum shall be used by the Secretary of Agriculture to investigate and report upon the organization and progress of farmers' institutes and agricultural schools in the several States and Territories, and upon similar organizations in foreign countries, with special suggestions of plans and methods for making such organizations more effective for the dissemination of the results of the work of the Department of Agriculture and the agricultural experiment stations and of improved methods of agricultural practice.

Mr. ADAMSON. I was inclined to think, Senator, that that language itself might be modified so as to authorize the Secretary to furnish us the initial aid we may want.

Senator PERKINS. The only question with you, or with the committee, as I understand, is your desire to raise the amount from \$5,000 to \$20,000.

Mr. ADAMSON. I suggest to the committee whether it is necessary to do this, in order to empower the Secretary—to add after the word "practice" on page 60:

And to cooperate with the State authorities in charge of agricultural colleges and stations and farmers' institutes in promoting a wider diffusion of agricultural education and preparation of charts for the use of farmers' institutes and agricultural schools.

Senator PERKINS. What does Doctor Galloway say to that?

Doctor GALLOWAY. I will say, Senator, that that wording is not at all necessary to enable the Secretary to do that.

Senator PERKINS. That is my own opinion.

Doctor GALLOWAY. The House has taken decided action in a number of cases of that kind, because such language seems to force a State to cooperate when it does not want to.

Mr. ADAMSON. I shall be entirely satisfied if you convert \$5,000 into \$20,000.

Senator DOLLIVER. We will do it.

The CHAIRMAN. You think what you want can be better done through the experiment stations than through the colleges?

Mr. ADAMSON. That might cause discussion, and that I thought we might avoid. There are so many colleges I thought I had better go in a channel where I could travel with the least resistance.

The CHAIRMAN. Professor White was here, and Assistant Secretary Hays was here with him. They were very earnest for the in-

crease of the appropriation for colleges, and Senator Nelson and Senator Clay have introduced bills; so that I thought it was a measure likely to meet with a good deal of favor. They laid great stress upon the importance of the colleges taking up this very branch of work in which you are interested.

Mr. ADAMSON. We failed to receive any encouragement at all from any members of the House committee.

Senator PERKINS. You thought this practicable?

Mr. ADAMSON. They all seemed opposed to this idea.

Senator PERKINS. It is not a very large increase.

Mr. ADAMSON. I was rather late in presenting my views. The committee were practically through with the consideration of the bill before I ever appeared before the committee. But I could not get them to change it, owing, perhaps, to the lateness of my appearance. At any rate, I did not care to antagonize their opposition, thinking it might be prejudicial when I came here.

Doctor GALLOWAY. I may say that this work has been carried on for a number of years under this small appropriation of \$5,000, which, of course, has not been sufficient for any great amount of work. This year the Secretary recommended an increase to \$20,000. The House committee did not report the \$20,000, but had some hearings on the subject. The purpose was to work with the colleges as well as with the experiment stations.

Mr. ADAMSON. I see no objection to making it larger myself. I have only asked for what I thought I could get. I am very much in earnest about it. We have done our best in Georgia, and we are going to keep on doing our best.

Senator DOLLIVER. You had better not retard your moderation.

Mr. ADAMSON. I think if I am reasonable I shall be listened to, as I am listened to now by you Senators.

Senator PERKINS. You are following diplomatic lines, the lines of least resistance.

Mr. ADAMSON. I want to say that I am very much in earnest. I live in a county which has strained itself to get one of these schools. We are all straining every nerve to get these schools. While I have a great deal of sympathy with the State of Vermont, which, as the chairman says, is able to take care of itself and only wants to be let alone, my doctrine is for every fellow to take care of himself as long as he can, but when a distribution is to be made it ought to be made fairly.

Senator PERKINS. You want a fair deal.

Mr. ADAMSON. Of course. If anything is going around I want my share. In this case, Mr. Chairman, as long as the Agricultural Department is established with a magnificent equipment, it is doing great good with the money appropriated. The assistance it has already rendered us through the aid of this general fund has been incalculable. If, after studying Senator Clay's bill, you should decide it not right to report that bill, yet I would like to have \$20,000 or \$30,000; that will answer our purposes and the purposes of others who have been striving in the same line.

Senator DOLLIVER. These Congressional district schools cover the same curriculum and general scope as the central agricultural colleges cover, or are they subordinate?

Mr. ADAMSON. They are subordinate.

Senator DOLLIVER. Preparatory?

Mr. ADAMSON. Yes, sir. I have only one copy of that curriculum, which I received this morning. I wish I had copies enough to furnish one to each member of the committee. I will get some others as soon as I can. The one I had I have handed to the chairman, and I will be glad to have you look at that.

Senator DOLLIVER. It is a step forward. Are you going to coordinate your public schools with these colleges?

Mr. ADAMSON. No.

Senator DOLLIVER. Is it not best to begin teaching agriculture in the country schools?

Mr. ADAMSON. No, sir. The governor of our State is opposed to that on the ground that the schools are well conducted and doing good service. He wanted to establish agricultural colleges separately in every district in the State.

The CHAIRMAN. We have taken much interest in what you have had to say, Mr. Adamson, and we have had Professor White's argument before us, and his statement and yours will be printed.

Mr. ADAMSON. I thank you, Mr. Chairman and Senators, for your kind attention.

STATEMENT OF MR. N. B. CRITCHFIELD,

The CHAIRMAN. Mr. Critchfield, secretary of agriculture for the State of Pennsylvania, is here and wishes a brief hearing.

Mr. CRITCHFIELD. Mr. Chairman and gentlemen of the committee, this seems to be a case where we are coming from the north and from the south and sitting down together. When I came into the room I was very much surprised to find under discussion the very same question in which I am interested. If the sentiment expressed by the gentleman who spoke a moment ago is the sentiment of the committee—that the amount be raised from \$5,000 to \$20,000—I do not want to take one minute of your time.

Senator DOLLIVER. In view of my limited authority for saying what I did a moment ago, perhaps you had better not forbear your argument on that account.

Mr. CRITCHFIELD. Mr. Chairman, I have requested the opportunity of appearing before your committee for the purpose of calling your attention to an item of the agricultural appropriation schedule modified by the Committee on Agriculture of the House of Representatives. The item referred to is that in which the Secretary of Agriculture recommends that "the sum of \$20,000 be appropriated to be used by the Secretary of Agriculture to investigate and report upon the organization and progress of farmers' institutes and agricultural schools in the several States and Territories, and upon similar organizations in foreign countries, with special suggestions of plans and methods for making such organizations more effective for the dissemination of the results of the work of the Department of Agriculture and the agricultural experiment stations, and of improved methods of agricultural practice." This item as reported by the committee of the House has been reduced to \$5,000, which was the sum appropriated last year.

The American Association of Farmers' Institute Workers, as you doubtless know, is a national or, rather, international organization,

made up of representative men from the several States and Territories and from the Dominion of Canada who are actively engaged in farmers' institute work—State directors of farmers' institutes, lecturers, and local managers. At the session of the association held at Baton Rouge, La., last November the association, by formal resolution, requested Congress to increase the appropriation for the work of the Division of Farmers' Institutes of the National Department of Agriculture and appointed a committee, of which I have the honor to be chairman, to present the matter before the Committees of Agriculture of Congress. It is as chairman of that committee that I am before you to-day.

In order that you may know something of the extent of the farmers' institute work in the United States and of its relative importance, I beg leave to present some data furnished at my request by the farmers' institute specialist of the Department of Agriculture, giving information along this line. For the year ended June 30, 1906, 45 States and Territories held farmers' institutes. There were 10,999 institute sessions of one-half day each, attended by 1,262,272 persons. There were, in addition, special institutes with an attendance of 85,762, also round-up meetings with an attendance of 24,598, and railroad agricultural specials attended by 215,980, making a total attendance upon the farmers' institutes of the United States in that year of 1,588,522 persons. There were 1,197 lecturers regularly employed on the State force, besides a large number of local speakers and essayists—between 4,000 and 5,000 who gave instruction in the institutes. The personal history of 791 of the State lecturers is known. Three hundred and eighty-six are college graduates, 159 had partial college courses, 130 had normal or high school training, and 116 have ordinary education, but are specialists in some branch of agriculture. The total amount of money appropriated for institute purposes throughout the country that year was \$264,672.28.

The figures give approximately the extent of this movement in agricultural education. Each year it has been increasing in numbers and efficiency. The sessions held in 1906 were 444 more than in 1905. The average attendance per session has advanced from 94 in 1905 to 114.7 in 1906; the number of State lecturers from 995 to 1,197. The degree of improvement of the agriculture of the country attributable to the dissemination of agricultural information by this means is impossible to accurately estimate, but the increase in agricultural production that is taking place is unquestionably due in large degree to the knowledge of improved methods which the institutes have brought to the attention of the practical workers on the farms.

The honorable Secretary of Agriculture in his annual report for 1905 refers to the work of the Department in agricultural education in the following language:

Recent years have also witnessed the development of a great system of popular agricultural education for the adult farmer through the farmers' institutes which are now held throughout the country and annually attended by about a million men and women engaged in agricultural pursuits. With the growth of the research work of this Department and the experiment stations it has become very evident that publications alone would not meet the demand for information regarding improved methods of agriculture and the ways in which the results of scientific investigation may be applied to agricultural practice. The absence of agricultural instruction in the schools and the coming onto the farms

of millions of people from foreign lands, together with the widespread interest in the results of agricultural research, have made it necessary that means be devised for giving agricultural people instruction by word of mouth which will enable them to understand and utilize the information so largely given out in the publications of this Department and the stations.

For this purpose the farmers' institutes established under public authority in the States and Territories furnish an agency of great usefulness. It has therefore seemed highly desirable that this Department ally itself closely with the farmers' institutes and make them efficient instruments for the wide diffusion of the knowledge gained by the Department and other agencies for agricultural research.

In his report for 1906, he says:

The farmers' institutes and other forms of what is often called extension work in agricultural education are very important supplements to the publications of the Department and the stations, as well as to the regular work of the agricultural colleges and schools. The Department should share in this extension work and seek to promote its general interests.

A number of national educational organizations have independently of any suggestion from the American Association of Farmers' Institute Workers adopted resolutions similar to those passed by our association.

The Farmers' National Congress, at its meeting at Rock Island in October, adopted a resolution requesting that the appropriation of \$20,000 for the purpose of enabling the Secretary of Agriculture to carry out the requirements of the act of Congress which directs him to investigate and report upon the organization and progress of farmers' institutes and agricultural schools in the several States and Territories should be granted, and instructed its legislative committee to see that the attention of the agricultural committees of both Houses of Congress is called to this action.

The Association of American Agricultural Colleges and Experiment Stations adopted similar resolutions at their meeting at Baton Rouge, La., last November.

The members of the Graduate School of Agriculture, at their meeting at Champaign, Ill., last summer, requested by formal resolution that the Office of Experiment Stations of the Department of Agriculture at Washington be provided with sufficient funds by the United States Government to enable it to prepare such material as shall aid in coordinating the efforts of leaders in this work (the introduction of nature studies and elementary agriculture teaching in the various grades of our public schools) and assist and guide teachers and beginners in establishing educative branches of this nature in the graded schools of our country.

The National Grange of the Patrons of Husbandry, the largest and most influential body of farmers in the United States, at its meeting at Denver, Colo., November, 1906, passed a series of resolutions covering quite fully the entire question of agricultural education extension work by the national Department of Agriculture, and instructed its legislative committee to use all proper means to secure an adequate appropriation from Congress for the subjects outlined, including \$20,000 annually to the national Department of Agriculture for agricultural education extension. Copies of the action of all of these organizations are herewith presented to the committees for information.

The President of the United States in his annual message to Congress December 3, 1906, took up the subject of agricultural educa-

tion. Several extracts from this message pertaining particularly to the share that the National Government should take in assisting farmers through educational means are herewith presented. He says:

All students now realize that all education must seek to train the executive powers of young people and to confer more real significance upon the phrase "dignity of labor," and to prepare the pupils so that in addition to each developing in the highest degree his individual capacity for work they may together help create a right public opinion and show in many ways social and cooperative spirit. * * *

While the farmers must primarily do most for themselves, yet the Government can also do much. The Department of Agriculture has broken new ground in many directions, and year by year it finds how it can improve its methods and develop fresh usefulness. Its constant effort is to give the governmental assistance in the most effective way; that is, through associations of farmers rather than to or through individual farmers.

In view of the unanimous recommendation of all of these influential educational organizations, of the Secretary of Agriculture, and the more general indorsement of this education by the President, it would seem unnecessary to take more of your time in urging upon you the importance of this subject or in itemizing. These organizations and individuals have given the matter most careful attention, and make their requests, therefore, with full understanding of the needs of the country. The amount requested is comparatively small, and yet with this the Secretary of Agriculture will be able to extend his work in the direction of rendering valuable assistance to the cause of agricultural education, particularly as it relates to external education work, such as the farmers' institutes, the movable schools of agriculture, agricultural high schools, normal schools for the preparation of teachers, the introduction of the teaching of agriculture into the rural schools, etc.

The farmers' institutes have come just now to a point where their work must be greatly enlarged if they are to be most serviceable to rural people. The introduction of agriculture into the public schools is a problem full of difficulties yet unsolved, and experts should be put to work to study the question and to suggest methods for its introduction that will be practicable and efficient from an educational standpoint. The Office of Experiment Stations of the Department of Agriculture is already cooperating with the agricultural colleges and experiment stations in the study and formulation of methods for giving instruction in agriculture in the higher institutions of learning. The extension of this study and cooperation by the Office of Experiment Stations to include methods for giving instruction in agriculture in the rural schools would be a most natural and efficient method of dealing with this subject as well as the most economical.

The various agricultural organizations of the country also are without cohesion of plan or definiteness of purpose. These should be studied and suggestions made for their improvement. The relation of transportation to agricultural production and progress is a most important subject, vital to agriculture, and as yet no systematic effort has been made or scientific study of the problem undertaken looking to its solution. These problems, largely educational and

administrative, are fully as important to agricultural people and to the country at large as the discovering of new forms of physical life and material things, to which so much attention is now being given and for which millions of money are annually expended.

These subjects for the study of which appropriation is asked are of a character which the individual States are unable to undertake in any systematic way to solve for themselves. They require years of patient research by skilled experts for their complete investigation and are of general interest and importance. The movement for the more general diffusion of agricultural education among the masses of our agricultural people is so great and widespread that it needs a central agency, which without exercising any control may collect information regarding different local phases of the movement and make available to the whole country results of value obtained in the different States or in similar work in foreign countries—in short, to act as a kind of clearing house for agricultural education.

The committee of the association that I have the honor as chairman to represent very respectfully ask the Committee of the Senate on Agriculture to reinstate the \$15,000 that was stricken out by the House committee and to urge its passage both before the Senate and in conference committee if conference is called.

I have some extracts from the President's message, and also from the recommendations of the Secretary of Agriculture, but I do not think it is necessary that I should take up time by reading them. I will leave them with you.

Senator PERKINS. I think they ought to be printed in our hearings.

The recommendations and resolutions referred to are as follows:

Recommendations and resolutions addressed to the Committees on Agriculture of the Fifty-ninth Congress at its second session, convened December 3, 1906.

Recommendations to Congress by the Secretary of Agriculture, Hon. James Wilson; resolutions by the Farmers' National Congress, the American Association of Farmers' Institute Workers, the Association of American Agricultural Colleges and Experiment Stations, the Graduate School of Agriculture, the National Grange of the Patrons of Husbandry, addressed to the Committees of Agriculture of the Fifty-ninth Congress at its second session in 1906-7, favoring an increased appropriation to the Office of Experiment Stations for farmers' institute work and agricultural education extension; also resolutions by the department of superintendence of the National Educational Association, February 27, 1906, and extracts from the annual message of the President to Congress, December 3, 1906.

RECOMMENDATIONS BY THE SECRETARY.

In the estimates prepared by the Secretary of Agriculture for the appropriations for his Department for the fiscal year ending June 30, 1908, which will be passed on by Congress this winter, the provision is made for the work of the Office of Experiment Stations relating to farmers' institutes and other phases of agricultural education. The proposed item for these purposes in the appropriation bill reads as follows:

"That twenty thousand dollars shall be used by the Secretary of Agriculture to investigate and report upon the organization and progress of farmers' institutes and agricultural schools in the several States and Territories and upon similar organizations in foreign countries, with special suggestions of plans and methods for making such organizations more effective for the dissemination of the results of the work of the Department of Agriculture and the agricultural experiment stations, and of improved methods of agricultural practice."

VIEWS EXPRESSED BY THE SECRETARY OF AGRICULTURE.

The Secretary of Agriculture, in his annual report for 1906, recently issued, speaks thus of the work of the Office of Experiment Stations for the promotion of agricultural education:

"With the development of the Department's work along educational lines it has become clear that it may accomplish important and valuable service as a central agency for the promotion of agricultural education in cooperation with the State departments of agriculture and education, the agricultural colleges and experiment stations, and the State and national agricultural organizations. * * *

"Since agriculture as a fundamental industry is of vital importance to all our people, this Department should present such results of its work and that of the experiment stations at home and abroad as are adapted to instructional purposes in connection with nature study and elementary agriculture in a form available to teachers and pupils in both country and city, the object being to impress our youth with the dignity, value, and attractiveness of country life and pursuits. * * *

"The Department is keeping in close touch with the State organizations under which the institutes are held, and is especially aiding the lecturers to obtain up-to-date information regarding the progress made in agricultural science and practice. In many localities there is a demand for more extended and definite instruction than can be given in the ordinary institutes. The Department is therefore having short courses of lectures prepared by experts, which may be used in so-called movable agricultural schools. Inquiry is also being made regarding the value of various other means more or less extensively used for interesting farmers and their families in improved practice on their farms and in their households. * * *

"The farmers' institutes and other forms of what is often called extension work in agricultural education are very important supplements to the publications of the Department and the stations, as well as to the regular work of the agricultural colleges and schools. The Department should share in this extension work and seek to promote its general interests."

RESOLUTIONS BY THE FARMERS' NATIONAL CONGRESS.

The Farmers' National Congress at its annual meeting held at Rock Island, Ill., October 13, 1906, adopted the following resolutions:

"Whereas the Hon. James Wilson, Secretary of Agriculture of the United States, is recommending to Congress an appropriation of \$20,000 for the purpose of enabling him to carry out the requirements of the act of Congress which requires him to 'investigate and report upon the organization and progress of farmers' institutes and agricultural schools in the several States and Territories and upon similar organizations in foreign countries, with special suggestions of plans and methods for making such organizations more effective for the dissemination of the results of the work of the Department of Agriculture and the agricultural experiment stations and of the improved methods of agricultural practice:' Therefore,

"*Resolved*, That the Farmers' National Congress heartily seconds this request of the honorable Secretary of Agriculture, and hereby instructs its legislative committee to see that the attention of the Agricultural Committees of both Houses of the Congress of the United States is called to this action by sending to each member of these committees a copy of this resolution."

RESOLUTIONS BY THE AMERICAN ASSOCIATION OF FARMERS' INSTITUTE WORKERS.

The American Association of Farmers' Institute Workers, at its annual meeting held at Baton Rouge, La., November 14, 1906, adopted the following resolutions:

"*Resolved*, That this association, appreciating the importance of providing more systematic and extended instruction in agriculture in the farmers' institutes, hereby expresses its approval of the movable schools of agriculture as an instrument for that purpose.

"Second. That it recommends the form of organization outlined and courses of study prepared by the National Department of Agriculture for the establishment of such schools, and hereby earnestly requests the Committees of Agriculture in Congress to recommend and the Congress to pass an appropriation

sufficient to enable the Department to perfect plans and courses of study and to organize, equip, and place in operation, in charge of competent experts, a number of these schools as demonstration of their value and practicability."

"ADDITIONAL RESOLUTION.

"Whereas we recognize the urgent need of an increased appropriation for the work of the Division of Farmers' Institutes of the National Department of Agriculture:

"Resolved, That the American Association of Farmers' Institute Workers at its eleventh annual session at Baton Rouge, La., respectfully urges the several State institute managements to seek, through the various means at their command, such increase in the appropriation for the purpose named."

By a subsequent resolution a committee of three was appointed consisting of Hon. N. B. Critchfield, of Pennsylvania, Prof. L. R. Taft, of Michigan, and Mr. Fred H. Rankin, of Illinois, to bring this action to the attention of Congress.

RESOLUTIONS BY THE ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.

The Association of American Agricultural Colleges and Experiment Stations at its annual meeting held at Baton Rouge, La., November 16, 1906, adopted the following resolutions:

"Whereas we believe that the Office of Experiment Stations of the Department of Agriculture should be given an adequate appropriation for the distinct purpose of investigating in a much more thorough manner than is now practicable the details of the various forms of agricultural extension teaching already in vogue, of assisting the different institutions to organize this form of work somewhat comprehensively, and of widely disseminating information and suggestions relative to new developments in the most important form of agricultural education: Therefore

"Resolved, That this association favors an appropriation by Congress which will enable the Department to carry out the work suggested.

RESOLUTIONS BY THE GRADUATE SCHOOL OF AGRICULTURE.

The Graduate School of Agriculture, at Champaign, Ill., July 25, 1906, passed the following resolutions:

"Whereas there is a well-defined and growing demand upon the agricultural colleges and experiment stations for assistance and suggestions bearing upon ways and means of encouraging the introduction of nature studies and elementary agriculture teaching in the various grades of our public schools; and

"Whereas there is at the present time no uniform, satisfactory, or adequate means of satisfying these legitimate requests: Therefore, be it

"Resolved, That it is the opinion of the instructing staff and body of students of this Graduate School of Agriculture that the Office of Experiment Stations of the Department of Agriculture, Washington, should be provided with sufficient funds by the United States Government to enable it to prepare such material as shall aid in coordinating the efforts of leaders in this work and assist and guide teachers and beginners in establishing educative branches of this nature in the graded schools of our country."

RESOLUTIONS BY THE NATIONAL GRANGE, ORDER OF PATRONS OF HUSBANDRY.

The National Grange, Order of Patrons of Husbandry, at its annual meeting, held in Denver, Colo., November, 1906, took the following action:

"There is a widespread movement in the United States for the more thorough diffusion of agricultural education among the masses of our rural population (40,000,000 souls). This movement is largely unorganized, and there is great lack of suitable material in proper form for use in the instruction of farmers and their children. The Department of Agriculture and the State agricultural experiment stations have accumulated a great mass of practical and scientific information on agricultural subjects which at present is being reduced to pedagogical form very slowly.

"The movement for agricultural education needs a central rallying point and clearing house. These functions are already performed by the Office of Experiment Stations for the agricultural colleges, experiment stations, and farmers' institutes. It is now proposed to extend this work so as to include the rural

high schools, elementary courses in nature study and agriculture in the common schools, movable schools for adult farmers and their wives, and other forms of extension work in agricultural education.

"Congress has already passed the necessary legislation extending the authority of the Department to work in these lines, but has thus far failed to provide adequate funds for the enlargement of this work. The present appropriation for this purpose is only \$5,000. It will therefore be necessary for the friends of agricultural education to secure a larger appropriation at the coming session of Congress if they expect the Department to meet the demands on it for work in promotion of this cause.

"As in the past, the educational work of the Department will be done in cooperation with the State departments of agriculture and education, the agricultural colleges and experiment stations, and the State and national agricultural organizations.

"The lines of educational effort along which it seems desirable to work may be briefly summarized as follows:

"(1) To aid the agricultural colleges to reduce the results obtained by the Department of Agriculture and the experiment stations to pedagogical form for use in agricultural colleges and schools of different grades. This work will be done as heretofore largely in cooperation with the Association of American Agricultural Colleges and Experimental Stations through its standing committee on agricultural instruction.

"(2) To aid the State departments of agriculture and the agricultural colleges and experiment stations in increasing the efficiency of the farmers' institutes and other forms of extension work in agricultural education for the masses of farmers and their wives and children.

"(3) To aid the agricultural organizations in the several States in promoting an efficient organization of the rural high schools, consolidated common schools, and other educational agencies best adapted to secure a high state of prosperity and contentment in rural life.

"(4) To aid the agricultural colleges and other State educational institutions and officers in preparing and inaugurating training courses for teachers of agriculture in secondary and elementary schools.

"(5) To make available to teachers and pupils in schools in both country and city the results of the work of the Department of Agriculture and of the experiment stations which are adapted to instructional purposes in connection with nature study and elementary agriculture, the object being to impress our youth with the dignity, value, and attractiveness of country life and pursuits.

"(6) To introduce experimentally new features of agricultural education which may be of value in connection with our educational system. Just now it seems desirable to find out how far a system of movable schools or short courses may be used to supplement the farmers' institutes.

"(7) To make a special effort to increase the efficiency of agricultural instruction in the negro land-grant colleges in order that the funds granted for negro education by the Federal Government may contribute toward keeping the negro on the farm and making him a more efficient factor in agricultural production rather than, as is largely the case at present, drawing him away from the farm.

"(8) To prepare and distribute suitable charts and other illustrative material on agricultural subjects for use in schools, farmers' institutes, etc.; and

"Whereas the present appropriation of \$5,000 is insufficient for carrying out the above-outlined plan, and for which Secretary Wilson has estimated that \$20,000 annually will be necessary: Therefore,

"*Resolved*, That the National Grange is in hearty accord with the above-outlined plan of agricultural education extension, and our legislative committee is hereby instructed to use all proper means to secure an adequate appropriation from Congress for that purpose."

RESOLUTION BY THE DEPARTMENT OF SUPERINTENDENCE OF THE NATIONAL
EDUCATION ASSOCIATION.

The department of superintendence of the National Educational Association at its meeting held in Louisville, Ky., February 27 to March 1, 1906, passed the following resolution:

"*Resolved*, That the department of superintendence of the National Educational Association is in hearty accord with that part of the report of the Hon. James Wilson, Secretary of Agriculture of the United States, in which

he encourages the teaching of elementary agriculture in the public schools, and respectfully requests Congress to grant the appropriation of \$13,620 which he has asked for to enable him to investigate and report upon the progress and present condition of agricultural instruction and institutions in this and foreign countries."

EXTRACTS FROM THE ANNUAL MESSAGE OF THE PRESIDENT TO CONGRESS,
DECEMBER 3, 1906.

In international rivalry this country does not have to fear the competition of pauper labor as much as it has to fear the educated labor of specially trained competitors; and we should have the education of the head, eye, and brain which will fit us to meet such competition.

In every possible way we should help the wage-worker who toils with his hands and who must (we hope in a constantly increasing measure) also toll with his brain. * * *

There is no longer any failure to realize that farming, at least in certain branches, must become a technical and scientific profession. This means that there must be open to farmers the chance for technical and scientific training, not theoretical merely, but of the most severely practical type. * * * Several factors must cooperate in the improvement of the farmer's condition. He must have the chance to be educated in the widest possible sense—in the sense which keeps ever in view the intimate relationship between the theory of education and the facts of life. In all education we should widen our aims. It is a good thing to produce a certain number of trained scholars and students, but the education superintended by the State must seek rather to produce a hundred good citizens than merely one scholar, and it must be turned now and then from the class book to the study of the great book of nature itself. This is especially true of the farmer, as has been pointed out again and again by all observers most competent to pass practical judgment on the problems of our country life. All students now realize that all education must seek to train the executive powers of young people and to confer more real significance upon the phrase "dignity of labor," and to prepare the pupils so that in addition to each developing in the highest degree his individual capacity for work they may together help create a right public opinion and show in many ways social and cooperative spirit. * * *

While the farmers must primarily do most for themselves, yet the Government can also do much. The Department of Agriculture has broken new ground in many directions, and year by year it finds how it can improve its methods and develop fresh usefulness. Its constant effort is to give the governmental assistance in the most effective way—that is, through associations of farmers rather than to or through individual farmers. It is also striving to coordinate its work with the agricultural departments of the several States, and so far as its own work is educational, to coordinate it with the work of other educational authorities. * * * Great progress has already been made among farmers by the creation of farmers' institutes, of dairy associations, of breeders' associations, horticultural associations, and the like. * * * The Department can and will cooperate with all such associations, and it must have their help if its new work is to be done in the most efficient style.

Respectfully submitted.

N. B. CRITCHFIELD.
L. R. TAFT.
F. H. RANKIN.

Committee of the American Association of Farmers' Institute Workers.

Senator DOLLIVER. Have you in mind exactly what the Department would do with this money?

Mr. CRITCHFIELD. So far as I have been able to get information from the specialists of the Department, the thought of the Department is to use this money, first of all, in securing men who will direct the work of movable schools of agriculture. A movable school is a school in which one or more competent instructors arrange to take up a definite subject, say dairy work or butter making or fruit growing—any one of these specific subjects. One or two competent

teachers will go from one section of a State into another section where the State director wishes to cooperate with the Department of Agriculture and make arrangements for meetings and hold a school for instruction along this particular line that shall last, say, from ten days to two weeks, and then go to some other point.

Senator DOLLIVER. What would the Secretary do with these agricultural colleges in Georgia?

Mr. CRITCHFIELD. If the Secretary wanted more instruction, such as I have been talking about, he would send instructors to Georgia to work exactly on the same line, to instruct others, making these Congressional schools, of which he was speaking—and this is a somewhat new idea—somewhat of the nature of normal schools for the instruction of others. In that way he can accomplish the same kind of work in different localities.

Senator DOLLIVER. Do you think \$20,000 would go far enough?

Mr. CRITCHFIELD. If the \$20,000 were used as carefully as the \$5,000 has been used it would accomplish quite a good deal. That is only one of the things that may be accomplished. Another is the preparation of charts that may be used in this farmers' institute work all over the country. Instruction, you know, is given in stock breeding, as well as breeding cereals. At the present day there is great demand by farmers for information in regard to breeding their cereals, just as in breeding their live stock, and instructions can be given along these lines.

You can not always have a lot of cattle or horses to be exhibited by a lecturer giving instruction, so it is necessary to have charts prepared. That is another one of the thoughts that I know is in the mind of the Department at this time. I have talked with the Department officials about these matters, and therefore I know some of the thoughts the Secretary has in his mind, and I should be glad to answer any questions covered by my address.

The CHAIRMAN. We have been glad to hear you.

STATEMENT OF MR. GIFFORD PINCHOT, CHIEF OF FOREST SERVICE, DEPARTMENT OF AGRICULTURE.

Mr. PINCHOT. Mr. Chairman, I infer that the main question before you to-day is as to the amount of money which could be used advantageously for the improvement of park reserves during the coming year. I would like to tell you, first, what the financial situation of the reserves is.

When the transfer of the park reserves was made to the Department of Agriculture the highest yearly income which had been received was \$60,000. During the year of the transfer, when we had them five months and were getting things into shape, the income from the reserves was \$75,000. During the past fiscal year, the first year when the Department had charge, the income was \$767,000. For the present fiscal year the income will be about \$1,250,000. We asked last year \$1,000,000—that is, for the present fiscal year—and our appropriation is \$1,000,000. For this year we have asked \$900,000. Next year I expect to ask for \$700,000; for the next, \$400,000; and five years from the transfer we expect the Forest Service will be entirely self-supporting from the income from the forests.

So much for running expenses. But this great area of land is exactly in the situation of a farmer without tools, without agricultural machinery. We have an appropriation for the running expenses, for the employment of men, but we have absolutely nothing as capital to invest in building fences or digging ditches, as on a farm, or for the purpose of buying reapers and mowing machines. In other words, we have no money with which to build trails, bridges, roads, and cabins for the rangers, or—most important of all—telephone lines. We are without the necessary machinery for efficiently looking after this great property, which is worth over a thousand million dollars. We ought to have a certain amount of money to be used in this way. We can double the efficiency of the ranger service by better means of getting around the country, and especially by having telephone lines established.

We have made very careful estimates of just what is needed in a certain number of typical reserves, in order to get at the amount of money that may be well spent in this way at once. The total appropriation shown by these estimates will be about \$6,000,000, but that would be more than we could spend economically at once. There will be considerably over 100 different reserves upon which this money ought to be applied. I can show you in a moment, if you care to have me do so, as to what is necessary for the Santa Barbara Reserve, for example.

Senator PERKINS. What is the area of that reserve?

Mr. PINCHOT. Nearly 2,000,000 acres. These papers are examples. We have taken the forest reserves and laid out on them the necessary telephone lines, trails, ranger cabins, etc., to enable us properly to handle the property. As things are now, for example, when a forest ranger goes out in the morning he may have to spend a couple of days running for his horses; he has no fenced pastures in which to keep them. If he is going to make a trip through the reserve, he is obliged to take with him his camp outfit in going from one cabin to another. Our best cabins cost only about \$200 each. Again, we ought to have bridges across streams, because in many cases it is a day's trip to go around to the other side of some steep canyon, whereas it would take but a very short time to get to the other side if you could cross on a bridge. It is the same way about trails, because a great deal of time could be saved if trails were built, so that one ranger could do the work of two or three. These estimates, as I have said, indicate the sum of about \$6,000,000 which ought to be spent in order to put the reserves into fairly manageable shape.

Senator PERKINS. You are asking for \$1,000,000?

Mr. PINCHOT. For \$1,000,000.

Senator PERKINS. The House has given you \$500,000?

Mr. PINCHOT. Five hundred thousand dollars.

Senator WARREN. Ten per cent of that goes to the States or Territories?

Mr. PINCHOT. Yes, sir.

Senator WARREN. You take the ground that the law of last year makes it permanent?

Mr. PINCHOT. Yes, sir.

Senator PERKINS. The question was asked you in the House committee as to the largest sum paid to any one State, and you replied about \$21,000 to Colorado.

Mr. PINCHOT. That is divided among many different counties.

Senator HANSBROUGH. How much in Idaho?

Mr. PINCHOT. About \$6,000.

Senator SIMMONS. I think you will want the word "hereafter" inserted there.

Mr. PINCHOT. An argument has been made that without that word "hereafter"—

Senator WARREN. This money to come out of the fund, and before you turn it into the Treasury?

Mr. PINCHOT. No, sir; at the end of the fiscal year.

Senator WARREN. Before we close our consideration of this bill I should like to have Mr. Pinchot get the opinion of the Comptroller of the Treasury on that.

Mr. PINCHOT. We are administering all these reserves under the law of 1897, much less definite as to duration than this.

Senator WARREN. But these payments have to be audited by the Treasury officers, and I wanted to know whether the Comptroller would pass on that language and how long it would be.

Mr. PINCHOT. I have been over this matter very carefully with the Comptroller and I know he considers it to be a continuing appropriation, year after year.

Senator WARREN. When do you make payments; quarterly?

Mr. PINCHOT. No; they are made at the end of the fiscal year. We were ready and turned our statement in to the Secretary of the Treasury within two weeks after the close of the fiscal year.

Senator WARREN. During this last year your money has been turned into the Treasury and paid out from there, has it?

Mr. PINCHOT. Yes, sir.

Senator WARREN. What I want is to, be sure. I do not want to have any trouble about it.

Mr. PINCHOT. I think you may rest easy about that.

Senator DOLLIVER. How many rangers have you?

Mr. PINCHOT. About a hundred.

Senator DOLLIVER. How much do you pay them?

Mr. PINCHOT. From \$900 up to \$1,400 per annum.

Senator DOLLIVER. How do you get them?

Mr. PINCHOT. By civil-service examination, and they must be residents from the States from which they are appointed.

Senator LATIMER. Where is this reserve you are referring to?

Mr. PINCHOT. In southern California.

This seems to me a perfectly simple proposition. The Government has this great property, which is held for a certain purpose, and we can secure very much more than the corresponding increase of revenue by making these roads, trails, etc. It would be as foolish not to develop this property in this way as it would be for a farmer not to be equipped with tools with which to do his work.

Senator LATIMER. Is this the Yosemite?

Mr. PINCHOT. No; it is in the southern part of the State.

Senator LATIMER. Is that reserve covered by timber?

Mr. PINCHOT. By timber and chapparal.

Senator LATIMER. Of what value is the chapparal?

Mr. PINCHOT. It has enormous value for the water supply. It has been calculated that a minus inch of water—that is to say, water com-

ing out of an orifice 1 inch square for four minutes under a certain pressure—is worth about \$5,000 a year.

Senator SIMMONS. You want the Government to withdraw that land from entry for the purpose of preserving that water supply?

Mr. PINCHOT. Yes, sir. These are among the most useful of all the various reserves in the United States.

Senator PERKINS. And absolutely useless for agricultural purposes.

Mr. PINCHOT. Absolutely useless.

Senator SIMMONS. The question I am trying to get at is whether the Government, if that part of the reserve is mere chapparal, should open it to entry?

Mr. PINCHOT. Nobody would enter it; it is all up and down hills.

Senator SIMMONS. One of the objects of the Government owning it is to preserve that water?

Mr. PINCHOT. Yes, sir.

Senator PERKINS. Do you not think the eucalyptus would grow there?

Mr. PINCHOT. It will on the southern edge.

Senator PERKINS. Where there is no frost it will certainly thrive. In Alameda County, in California, they are setting out eucalyptus and getting a revenue from it for timber alone. I think you could grow the Australian eucalyptus on that reserve.

Mr. PINCHOT. We are making a careful study, and it may interest you to know that eucalyptus, when properly seasoned, is a very good substitute for hickory—not for buggy spokes, but for the coarser uses to which it is put, in wagon making, for instance.

Senator SIMMONS. Is there not a good deal of this land covered by reserves which are taken charge of by the Government simply for the purpose of preserving the water supply?

Mr. PINCHOT. Yes, without question.

Senator SIMMONS. And you want to spend this money there largely for that purpose?

Mr. PINCHOT. To prevent fires and preserve the water supply.

Senator SIMMONS. Is it not just as important for the Government to take charge of the water supply in other mountain regions as in that region?

Mr. PINCHOT. Among the most important functions of the forest reserves, both those established and those proposed, is the preservation of the water supply.

Senator SIMMONS. And for purposes of irrigation?

Mr. PINCHOT. And for purposes of irrigation. In other cases it is to prevent damage from floods or to prevent the silting up of streams, which obstructs navigation. It is for whatever may be the most valuable use.

Senator SIMMONS. It seems to me it is just as much to the interest of the Government to preserve the water supply in order to prevent destruction by fire as it is to preserve it for irrigation.

Mr. PINCHOT. We want to preserve it in order to prevent destruction.

Senator SIMMONS. I was trying to show the analogy between the expenditure for this purpose and the expenditure for the same purpose in the South.

Mr. PINCHOT. I believe they are exactly the same.

Senator PERKINS. The cabins you refer to are ordinary log cabins?

Mr. PINCHOT. Yes, sir. We want them with stoves, so as to make the men comfortable.

Senator PERKINS. You do not want them steam heated?

Mr. PINCHOT. No.

Senator LATIMER. How do you get the income from these reserves?

Mr. PINCHOT. There are half a dozen different ways. One is the timber supply. Timber is scattered about in considerable bodies. We have had one quite large sale of \$4,000 for the stumpage. There were numbers of cattle running about on the hills when we went in there and regulated the grazing. Curiously enough, also, we are getting a little income in this reserve from bees; that is, a man wants to set up a bee range in the mountains and wants an acre or two for that purpose; we give him a permit for \$1. The amount of honey that comes out of those mountains is very considerable.

Senator WARREN. That is a part of the revenue?

Mr. PINCHOT. Yes; the money, not the honey.

Senator WARREN. Do you make dugouts at all?

Mr. PINCHOT. Occasionally.

Senator WARREN. They are a great deal cheaper than frame houses or log cabins.

Mr. PINCHOT. A great many cabins are dugouts in the rear.

Senator WARREN. When you are figuring upon what you are going to get I think you had better calculate the loss for grazing. I grant you get a large income, because the timber is the main thing.

Mr. PINCHOT. The timber is the main thing.

Senator LATIMER. If I understood you correctly, it is going to take between \$6,000,000 and \$7,000,000 to put in these telephone lines and build these houses and get them in shape for occupancy before you are through with your experiment. Is that correct?

Mr. PINCHOT. It will probably cost about \$6,000,000.

Senator LATIMER. After you have spent that and got these telephones and houses you think the reserves will be self-sustaining?

Mr. PINCHOT. They will be self-sustaining in three years.

Senator LATIMER. What do you estimate we are to get out of this after the telephone lines, cabins, and all that are constructed?

Mr. PINCHOT. I can answer by analogy; the Russian Government is getting a net income of about \$25,000,000 a year from its forests.

Senator PERKINS. How does the Russian area compare with ours?

Mr. PINCHOT. Theirs is about three or four times as large as ours. The French Government is getting a net income of about a dollar per acre per annum from its forests. The income from these forests ought to be about \$125,000,000 a year. I think it is a perfectly reasonable thing to say that within twenty years from now these forests will afford an income, if handled in that way, of from \$20,000,000 to \$25,000,000 a year.

Senator LATIMER. But those European countries have a denser population than we have.

Mr. PINCHOT. They have not only a denser population, but a much greater density of timbered country in the sense that we have not all over the country the vast areas that we have in the West.

Senator LATIMER. How about the demand for timber?

Mr. PINCHOT. We use about four times as much timber per capita as they do in Germany.

Senator PERKINS. When I went through the Black Forest of Germany I was informed by a German who seemed to be conversant with the subject that they received about \$2.50 an acre, and the forest was not diminishing at all. That was a most interesting statement to me. The inspectors went through the forests and marked the trees that were to be cut down.

Mr. PINCHOT. Even in Saxony they are getting over \$5 an acre per annum from their forests and still not diminishing the supply.

Senator HANSBROUGH. Have they not a rule in Germany to plant two trees for every one that is cut down?

Mr. PINCHOT. Not exactly in that form.

Senator PERKINS. The way our forests have been destroyed is almost criminal.

The CHAIRMAN. Have you anything further, Mr. Pinchot?

Mr. PINCHOT. May I say one other thing? In Denver recently, at the convention of the American National Live Stock Association, at which meeting there were representative stockmen from all parts of the West, unanimous resolutions were passed asking for Government control and open range. There are between three and four hundred million acres of land in the West valuable only for grazing, and men fight for them. There are every year many killings because of these range controversies, and the range itself is being rapidly destroyed. The best estimates we can get are to the effect that the western range, taken as a whole, does not carry much more than half that it was once able to carry. It is most desirable that the Government, being the owner of the lands, should take control and regulate the grazing, and thereby very greatly increase their value to the nation. These stockmen now feel, and have asked, that that be done.

There is a reason why they are anxious to have immediate action. The President, as you know, has said that unless Congress takes action of some kind at this session all the fences on the public domain must come down after the 1st of April. A great many of these fences are absolutely legitimate in this sense, that the men who put them up, by the fact that they have improved the ranges and have had priority of use, are entitled to as much of the public domain as they have fenced. It is greatly to the public interest that the grazing lands should be fenced, because in no other way can they be properly handled. It is absolutely necessary that, under some proper regulation, there should be fences. Reasonable fencing should be permitted. It would result in very serious loss if these fences had to be taken down this summer and put up again next summer. It would disorganize business for the time they were down, and the destruction of the fences would be a great loss.

Senator PERKINS. In connection with your remarks about preserving these grazing lands for the public benefit have you considered the advisability of seeding them, by concert of action with the Agricultural Department, with some sort of grass that will perpetuate itself?

Mr. PINCHOT. We have considered that, and we are cooperating now with Doctor Galloway, looking to work of that kind by the Forest Service.

Senator PERKINS. Do you or not deem it practicable for your foresters to do this?

Mr. PINCHOT. Absolutely practicable and absolutely essential. We believe that thereby the grazing value of the western ranges, both inside and outside the forest reserves, can be multiplied.

I would like to add that the stockmen are so much interested that there will be here next Monday 15 or 20 representative stockmen from all parts of the West, if they can get through on account of the blizzard. The chairman of the committee of the National Live Stock Association is here now, and they wanted me to ask you for a hearing on this subject, with a view of incorporating some provision in the agricultural bill for the purpose of starting the system and keeping it going far enough to prevent the troubles which Senator Warren has spoken of if the fences are taken down.

Senator HANSBROUGH. But we are likely to report the bill before Monday.

Mr. PINCHOT. But they can not get here before Monday.

Senator PERKINS. Have you prepared an amendment?

Mr. PINCHOT. Yes; but I do not know whether I can present it.

Senator PERKINS. Does your amendment pertain to fencing?

Mr. PINCHOT. It does not provide for fencing in so many words, but it regulates the matter.

The CHAIRMAN. Is not that a matter that ought to go to the Committee on Public Lands?

Senator HANSBROUGH. But this is so important, Senator, that I think we might consider it now. I have talked with Mr. Pinchot about it. I have also talked with the President, who is very much interested in having this fencing regulated this year. As I understand, your amendment carries out the President's idea?

Mr. PINCHOT. Yes, sir. Would you like to have me read it?

Senator HANSBROUGH. Yes; I think it would be a good idea, because if it appeals to the committee I see no reason why we should not consider it before we report the bill. These stockmen are greatly interested in it, and if we can put it in the bill it seems to me it will be dealing fairly with them.

Mr. PINCHOT. I will read it:

And hereafter, for the purpose of restoring, protecting, and increasing the grazing value of the public domain, and promoting the agricultural use thereof, the Secretary of Agriculture may regulate and control grazing upon the unappropriated unreserved lands of the United States, under such rules and regulations as he may prescribe, and charge and collect reasonable fees for grazing thereon, the receipts to be deposited in the Treasury of the United States to the credit of the special fund arising from charges for timber, grazing, and other resources of the national forests and provided for by section 5 of the act of February 1, 1905 (Vol. 33, Stat. L., p. 28), which is hereby appropriated and made available in addition to its present uses, and to the restrictions provided by law for the regulation, restoration, protection, and increase of grazing upon the public lands, and for the employment of the necessary assistants in Washington and elsewhere, and it shall be unlawful, after January 1, 1908, to graze any live stock upon said public lands otherwise than as the said rules and regulations shall prescribe: *Provided*, That homestead and other settlement location, entry, patent, or other disposal of public lands, under the public-land laws, shall be in no wise restricted, limited, or abridged thereby, nor shall anything herein be construed to prevent bona fide settlers or residents from grazing their stock, used for the domestic purposes, under the regulations above provided.

The CHAIRMAN. That is not in print.

Mr. PINCHOT. Merely in typewriting. That is the only copy I have. I understood Senator Burkett was going to introduce that this afternoon as a proposed amendment.

Senator HANSBROUGH. You have the machinery already for this?

Mr. PINCHOT. It can be done without costing the Government a cent. I want to make that strong. This whole thing can be inaugurated without costing the Government a cent. We would use for that the funds that we get from forest reserves, and put into the same fund the grazing fees on the public domain in order to replace the money.

Senator SIMMONS. I gave notice yesterday that I wanted to introduce an amendment to the section of the bill with reference to forest reserves. It is an amendment concerning the Appalachian and White Mountain rivers and streams. With the permission of the committee, I would like to read this while Professor Pinchot is here, and ask him his views about it, so that the committee may have the benefit of them.

[Emergency appropriation, page 66, after line 19.]

Survey of and report on Appalachian watersheds: To enable the Secretary of Agriculture to examine, survey, and ascertain the natural conditions of the watersheds at and near the sources of the various rivers having their sources in the Southern Appalachian Mountains, and to report to Congress the area and natural conditions of said watersheds, the price at which the same can be purchased by the Government, and the advisability of the Government's purchasing and setting apart the same as a national forest reserve for the purpose of conserving and regulating the water supply and flow of said streams in the interest of agriculture, water power, and navigation, twenty-five thousand dollars.

I want to ask you your views about that amendment, Doctor?

Mr. PINCHOT. My judgment is that it is a very wise thing, Senator.

Senator WARREN. That is not a present forest reserve? That is nothing that has passed the House?

Senator SIMMONS. It has not. This proposition is simply for the Government to acquire control of the watersheds of those two regions.

Senator DOLLIVER. It is more for a preliminary survey.

Mr. PINCHOT. Yes; with a view to advising Congress. It seems to me decidedly wise.

Senator PERKINS. Have you made any estimate of the cost of this work?

Mr. PINCHOT. I think it can be done inside of \$25,000. A certain amount of the work has already been done, both under the Geological Survey and by the Forest Service. We can complete that work, round it out, by next fall, or by the first of the coming year, at any rate, under an appropriation of this kind.

Senator SIMMONS. What do you think about it, Doctor Galloway?

Doctor GALLOWAY. I think it can be done for \$20,000.

Senator SIMMONS. Then we can say "\$25,000, or so much thereof as is necessary." One bill has passed the Senate and is now before the House. That is a general proposition for the Government to buy large areas of lands in the Appalachian and White Mountain regions and set them apart as forest reserves. The main purpose in view is to protect the water supply. That purpose can be accomplished as well, it seems to me, by the Government purchasing the watersheds as it can be by purchasing an immense volume of land, some watersheds and some not. I do not think my people are particularly in favor of the proposition to establish forest reserves, except for the purpose of protecting their water supply, and my purpose here is to limit the reserves to that area of land which is necessary to accomplish this specific purpose. The proposition is meeting with some opposition in the House from the Speaker, not from the mem-

bership, because I think two-thirds of the Members are in favor of the Senate proposition. The opposition I understand to be based on the argument that there has been no estimate of what this will cost and no survey that indicates definitely what lands will be covered by the proposed reserve. I think the people in my State prefer, and I prefer, to limit it to such lands as are necessary to protect the water supply from those streams. In twelve States of the South, the majority of all the rivers flowing through them have their origin in the Appalachian Range.

Mr. PINCHOT. Before I turn that amendment over to the committee, there is one small sentence I forgot; that is, for the appointment of assistants in Washington and elsewhere.

The CHAIRMAN. Just insert that and return it.

STATEMENT OF DR. HARVEY W. WILEY, CHIEF OF THE BUREAU OF CHEMISTRY, AGRICULTURAL DEPARTMENT.

The CHAIRMAN. I have asked Doctor Wiley to come here, as I wanted to ask him something about the Bureau of Chemistry. What would be the effect of the proviso on page 45 of the bill, which proviso was put on in the House, that "no part of this sum shall be used for the payment of compensation or expenses to any officer or other person employed by any State, county, or municipal government?" What would be the effect, so far as cost to the Government is concerned, and what would be its effect upon the administration of the pure-food law?

Doctor WILEY. Mr. Chairman, I am in entire sympathy with the purpose for which this amendment was offered. As I understand it, from Mr. Tawney's statement on the floor of the House, it has my entire sympathy. He feared that, without some such provision, the State authorities might be lax in proceeding for the enforcement of their own laws, expecting that the United States would pay their bills. I think that is a very wise thing to prevent if it can be done. At the same time, as the amendment now stands it would increase very considerably the difficulty attending the enforcement of the pure-food law and very seriously cripple its efficiency, and I will state briefly my reasons.

I should say almost 50 per cent of all the cases brought in the States, when they are run down to the bottom facts, show that the origin of the cases was without the State—that it had been brought into the State from another State. When a case has been made out by the State authorities, it could be immediately taken up by the Department of Agriculture, but it would not be quite fair for the Department to take it up and ask the State authorities to give their time and services as chemical experts and witnesses without in some way offering them compensation. The State has earned it. If we did not accept the services of the State authorities in this way, we would have to begin again and make a new investigation by entirely new people not connected with the State service.

The CHAIRMAN. When they are familiar with all the conditions.

Doctor WILEY. They are familiar with the conditions. Without

this provision or some modification we could not utilize what the State had done. So I am in favor of letting the amendment stand.

The CHAIRMAN. You want this amendment to stand, with some modification?

Doctor WILEY. With a modification; yes.

The CHAIRMAN. Have you a proposed amendment?

Doctor WILEY. Yes; I have one ready here to propose to you: "Except with the consent of the governor of the State or the authorities of the municipality."

Senator LATIMER. What would be the effect if the case arose in another State?

Doctor WILEY. Suppose your State authorities had seized a sample which they found was made in North Carolina, they could not go into that State and get the man. The authorities of the State of North Carolina could well say, "You can not utilize what we have done without you pay the expense." I think that is only fair.

The CHAIRMAN. It seems to me that opens wider the door for the same kind of objection that was made in the House; that is, those objecting will say, "Of course the governor and the authorities will consent to your paying." They will want you to pay just as much of the expense as possible. I believe in using these State authorities. Now, how much would you pay these officers or any individual officer?

Doctor WILEY. I should think that would depend on the value of the services they rendered.

The CHAIRMAN. In your past experience, you have used them?

Doctor WILEY. Oh, yes; we have used them repeatedly.

The CHAIRMAN. Would you pay a man in any one State more than \$100?

Doctor WILEY. We have in a few instances paid salaries as high as \$225 in one year. We have paid that for special services.

Just one other thought: I am perfectly in sympathy with the idea of not paying a single dollar to a State to enable it to enforce its own law. I think the object of this amendment is to prevent this being paid to a State official for the enforcement of that State's own law. We are in entire sympathy with that.

The CHAIRMAN. These State officials, who are drawing State salaries, are not going to refuse to assist the Government because of any fear that they will lose their own employment?

Doctor WILEY. No; but at the same time I think they would like to help get the men who have violated their laws. We have already had one request from the health officer of the State of Indiana, who said he had found a case. We investigated the case, and we are going to prosecute under our law. But the offender resides in Kentucky. The Indiana official can not go into Kentucky and take the evidence to prosecute that man.

Senator SIMMONS. Do they not demand pay for furnishing that evidence?

Doctor WILEY. No, they do not demand it; but we do not like to ask a man to work for nothing.

The CHAIRMAN. The House was very strongly in favor of inserting that, as you know.

Doctor WILEY. I know that

The CHAIRMAN. It was on the ground that the States would unload the expense on the General Government. If that is what they want to do, it seems to me your amendment only makes the matter worse; that is, the objectors, if we should find any on the floor of the Senate, would say, "Of course the State authorities are going to consent to that; they are going to encourage it; the more the better."

Senator DOLLIVER. If you should bring a case against a Kentucky manufacturer, would not the expense be limited practically to the witness fees?

Doctor WILEY. And the expense of traveling to testify would be part.

Senator SIMMONS. Was it not one ground of objection that the Government would be paying State officers part of their salaries?

Doctor WILEY. I think that was an objection.

Senator HANSBROUGH. It would satisfy you, as I understand, to strike out the amendment entirely?

Doctor WILEY. Yes; and we would never abuse it in the way which some have thought.

Senator HANSBROUGH. Let Doctor Wiley try this for a year, anyway.

Senator PERKINS. Strike out the whole inhibition and let it go to conference.

Doctor WILEY. If we ever need help, it is now, at the beginning. I wish you would give us a trial for a year without this amendment.

The CHAIRMAN. Does the statement you made to the House committee give the amount you have paid heretofore?

Doctor WILEY. Yes, sir. We have made our financial statement. We paid last year for the collaboration of certain officials of the State and of State agricultural experiment stations about \$1,500, altogether. That is the most we have ever paid.

Senator WARREN. You were in operation some five or six months?

Doctor WILEY. Twelve months. We had a committee of experts for the Secretary to consult, as authorized by law. The State pure-food associations in national convention named five experts of their own. The Secretary appointed those five, and three others from State experiment stations, to advise him as to what were adulterations in foods and what should be considered standard purity. We paid those men \$10 a day when in session, and \$5 a day for expenses; in all about \$15 a day for each man. That is all we have ever expended in this way.

The CHAIRMAN. How would it do to add a provision that you or the Secretary should make a detailed report of the amount paid to each State official?

Doctor WILEY. We do that any way. We do that every year.

The CHAIRMAN. It would do no harm to put it in the law.

Senator DOLLIVER. I have had several telegrams, rather dogmatic in character, requesting that the Department be deprived of this autocratic power to decide upon the standard of purity of foods.

The CHAIRMAN. We have here a proposed amendment in regard to food preservatives.

Doctor WILEY. I can explain that. We have for a number of years this authority proposed to be granted here; even up to last year it included the power in the Secretary to fix standards of purity. Last year the law was modified so as to ascertain the purity, using this very language. This clause was inserted again by the House committee, but it went out on a point of order, and so last year it went out.

The CHAIRMAN. And was restored by us.

Doctor WILEY. Restored by the Senate last year. We have modified it, using the language which was used to form the basis for fixing grades of grain—that is, not making a standard grade, but to secure information upon which the standard could be based—to get that information from some competent authority, and which we think will obviate the objections that have been made.

And I want to say, as Senator Dolliver has just said that he has had a dozen protests, that I suppose I have had 500. The Secretary of Agriculture can not bring a case under this statute until he fixes a standard, at least in his own mind, and he must instruct the officer to go by that standard; otherwise how would he know when the law was violated?

The CHAIRMAN. What is the use of the last part, after the semicolon, "as a basis?"

Doctor WILEY. I copied that from the same regulation in a previous part of the bill requiring the fixing of a basis for grain, so that it could be used for this purpose.

The CHAIRMAN. Could it not have been used without?

Doctor WILEY. Yes; it could have been used without.

The CHAIRMAN. Then that is not necessary, is it?

Doctor WILEY. No; it is not necessary. As you know, the State authorities have been collaborating with us in this matter. They all want a uniform standard, so that what is considered an adulterant in one State will be considered an adulterant in every State.

Senator DOLLIVER. What do you mean by saying "regarded as an adulterant?"

Doctor WILEY. Because there is a great difference of opinion about that.

Senator DOLLIVER. Then why not say what is an adulterant?

Doctor WILEY. I would be perfectly satisfied with that language.

The CHAIRMAN. If there are no further questions to be asked of Doctor Wiley, suppose we have an executive session.

At 4.35 o'clock p. m. the committee went into executive session.

AGRICULTURAL COLLEGES.

COMMITTEE ON AGRICULTURE AND FORESTRY,
UNITED STATES SENATE,
Wednesday, January 30, 1907.

The committee met at 10.30 a. m.

Present: Senators Proctor (chairman), Burnham, Perkins, Latimer, and Frazier.

There were also present Dr. H. C. White, president of the University of Georgia; Dr. W. O. Thompson, president of Ohio State University; Hon. W. M. Hays, Assistant Secretary of Agriculture, and Dr. A. C. True, Director of the Office of Experiment Stations, Department of Agriculture.

The CHAIRMAN. Gentlemen, the subject on which we are to have a hearing this morning is the bill (S. 6680) to provide for an increased annual appropriation for the colleges for the benefit of agriculture and the mechanic arts, established and maintained under the provisions of the act of Congress approved July 2, 1862, and the act of Congress approved August 30, 1890.

The bill is as follows:

Be it enacted, etc., That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, to be paid as hereinafter provided, to each State and Territory for the more complete endowment and maintenance of agricultural colleges now established, or which may hereafter be established, in accordance with the act of Congress approved July second, eighteen hundred and sixty-two, and the act of Congress approved August thirtieth, eighteen hundred and ninety, the sum of five thousand dollars, in addition to the sums named in the said act, for the fiscal year ending June thirtieth, nineteen hundred and eight, and an annual increase of the amount of such appropriation thereafter for four years by an additional sum of five thousand dollars over the preceding year, and the annual sum to be paid thereafter to each State and Territory shall be fifty thousand dollars, to be applied only for the purposes of the agricultural colleges as defined and limited in the act of Congress approved July second, eighteen hundred and sixty-two, and the act of Congress approved August thirtieth, eighteen hundred and ninety.

SEC. 2. That the sum hereby appropriated to the States and Territories for the further endowment and support of the colleges shall be paid by, to, and in the manner prescribed by the act of Congress approved August thirtieth, eighteen hundred and ninety, entitled "An act to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of the act of Congress approved July second, eighteen hundred and sixty-two," and the expenditure of the said money shall be governed in all respects by the provisions of the said act of Congress approved July second, eighteen hundred and sixty-two, and the said act of Congress approved August thirtieth, eighteen hundred and ninety: *Provided*, That said colleges may use a portion of this money for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts.

SEC. 3. That Congress may at any time amend, suspend, or repeal any or all of the provisions of this act.

STATEMENT OF DR. H. C. WHITE, PRESIDENT OF UNIVERSITY OF GEORGIA.

Doctor WHITE. Mr. Chairman, we had expected to come before you this morning, under the guidance of Senator Nelson, and it is at his invitation that we appeared. He is now engaged, however, in another committee, and it will probably be some little while before he can get here, if at all. So, not desiring to detain you, gentlemen, we thought we might as well appear here and offer what we have to say concerning the bill.

As you already know, the bill was introduced by Senator Nelson, to provide for an increased annual appropriation for the colleges for the benefit of agriculture and the mechanic arts.

This bill was introduced, I take it, upon Senator Nelson's own motion; certainly not at the request or instigation of anybody connected with the colleges which we represent, so far as I know. Of course, we are extremely interested in the objects of this bill.

I have no doubt you gentlemen are familiar with the history of the establishment of these colleges. After long labor on the part of the late Senator Morrill, the Congress in 1862 finally made provision for the establishment of colleges, which were to be colleges of the people, and more particularly intended to provide an education which would fit the masses of the people to engage in industrial pursuits. They were established and were successfully maintained, notwithstanding all the troubles of the civil war, and in the course of a comparatively few years those colleges got upon their feet, and in the several States they instigated appropriations of money for that kind of education. They were notably the nuclei of many of the great State universities of the Western States, as in Ohio, Illinois, and in Wisconsin, where great institutions grew up around these nuclei.

Senator PERKINS. These original appropriations or grants of aid by Congress were in the form of public land grants, were they not, altogether?

Doctor WHITE. Yes; altogether. A donation was made of 30,000 acres of scrip for each Senator and Representative in Congress. Now, the success of these colleges, of course, was very gratifying, but the smaller States were to a great extent handicapped—that is to say, their land-scrip fund was much smaller because the appropriation was made on the basis of Senators and Representatives in Congress. So in 1890 Senator Morrill undertook to adjust that difference by making an equal appropriation to each State. At first that was upon the public lands also, but provision was made in the homestead act that in the event the proceeds from the sale of public lands should not suffice to pay that appropriation, then it might be paid out of the General Treasury. So to all intents and purposes, of course, it is a charge upon the Treasury. An appropriation was made of \$25,000 to each State, equalizing to a certain extent the gift of 1862.

Gentlemen, those institutions have grown wonderfully. It is really no exaggeration. I think, to say that they represent the most remarkable phase of education in America, if not in the world. There has been nothing like the growth of this kind of technical education. There have been engineering schools, there have been schools of what we call "applied science," of course, but this great movement on the

part of a great nation, to interest its people in that kind of education, immediately related to the occupations of the great mass of the people, exceeded in its success the expectations of its founders, and it really has been marvelous. Of course these institutions could not have subsisted upon the Congressional grants alone, and therefore those grants have been supplemented magnificently in many of the States by State funds.

You have the statistics before you, or can get them. It is not necessary for me to go into them, but I happen to have here some figures which I had occasion to obtain for another purpose, showing the total appropriations which have been made by Congress and by the States for nineteen of these institutions. In 1896 the Federal appropriations amounted in bulk to \$809,000 and the State appropriations to \$372,000. Ten years later, in 1906, to those nineteen institutions the Federal aid was not much more, being \$974,000, but the State aid was \$1,150,000; in addition to which the States have given to these nineteen institutions \$800,000 for buildings, so the States have very largely supplemented that amount.

Now, of course, these institutions are always in need of funds. They must get their funds either from the Federal Treasury or from the State treasury, or from both. We think we can expend at this particular juncture the appropriations provided for in this bill to very good effect.

It happens that we have reached what may be called a critical time in the history of these institutions, for this reason: We have succeeded in formulating fairly well courses of instruction of a collegiate character. Of course they reach relatively but few persons. There are something like 60,000 students in attendance on these institutions, employing staffs of instructors numbering something over 3,000; but of course that is a small proportion of the population, and if this education is a good thing and is of a kind that the people should have we want to carry it back into the secondary schools and into the primary schools if we may.

Senator PERKINS. Doctor, in each of these universities there is only one chair of agriculture devoted to that particular subject, is there not? The other chairs are scientific, philosophical, literary, and so forth are they not?

Doctor WHITE. Oh, no; by no means. Of course there are chairs of pure science, but a great deal more attention is paid to the subject than would be indicated by your question.

Senator PERKINS. But you are speaking now just for the agricultural department of the State universities.

Doctor WHITE. That is practically it; yes. Of course there is a difference—

Senator PERKINS. Our own State of California, in its organic law, provides that a certain tax shall be perpetual, and each year that amounts in the aggregate to some \$600,000 for our university, where we have between 2,500 and 3,000 students—the University of California.

Doctor WHITE. Yes; I know that. It does admirably well.

The CHAIRMAN. As I undersand you, in the last ten years the Government appropriations have increased very little, while the

States have increased their appropriations to about three times what they were.

Doctor WHITE. Yes.

The CHAIRMAN. Is that approximately correct?

Doctor WHITE. I think that is approximately correct, according to the figures which I have here, which apply to 19 of the institutions. But I think the same state of facts will be found to exist all along the line, and it is true that the State appropriations have increased to a very considerable extent, whereas of course there has been no increase in the Federal appropriations except that provided in the law of 1890, which is a progressive appropriation, just as this intends.

Senator PERKINS. I think if you could show, for the information of the Senate, the amount that the Federal Government has appropriated for this purpose, exclusive of what the States have appropriated, and then show why you are asking for this increase to this special department, it would answer many inquiries that will be made of us on the floor of the Senate. The reply would be very interesting and instructive, coming from you, who are an authority upon this question.

Doctor WHITE. I have those statistics for 1905.

Senator PERKINS. I suggest that you embody them in the hearing.

Doctor WHITE. I will do that.

[United States Department of Agriculture, Office of Experiment Stations—Circular No. 64. A. C. True, Director.]

STATISTICS OF LAND-GRANT COLLEGES AND AGRICULTURAL EXPERIMENT STATIONS,
1905.

[Compiled by Miss M. T. Spethmann.]

The following statistical statements relating to the institutions established under the acts of Congress of July 2, 1862, and August 30, 1890, and to the agricultural experiment stations, which, with a few exceptions, have been organized under the act of Congress of March 2, 1887, and are conducted as departments of the institutions receiving the benefits of the land-grant act of July 2, 1862, are abstracts of statistics published in the Annual Report of the Office of Experiment Stations for 1905. They have been compiled in part from replies to a circular of inquiry sent out from this Office and in part from the annual reports of the presidents of these institutions made on the schedules prescribed by the Commissioner of Education.

SUMMARY OF STATISTICS OF LAND-GRANT COLLEGES.

Educational institutions receiving the benefits of the acts of Congress of July 2, 1862, and August 30, 1890, are now in operation in all the States and Territories except Alaska, Hawaii, and Porto Rico. The total number of these institutions is 65, of which 63 maintain courses of instruction in agriculture. The aggregate value of the permanent funds and equipment of the land-grant colleges and universities in 1905 is estimated to be as follows: Land-grant fund of 1862, \$12,049,626.89; other land-grant funds, \$3,295,193.51; other permanent funds, \$15,968,463.07; land grant of 1862 still unsold, \$4,101,749.18; farm and grounds owned by the institutions, \$6,665,013.43; buildings, \$28,192,385.11; apparatus, \$1,957,030.42; machinery, \$2,623,995.48; libraries, \$2,520,350.21; live stock, \$342,998.09; miscellaneous equipment, \$3,544,959.03; total, \$81,251,764.42. The income of these institutions in 1905, exclusive of the funds received from the United States for agricultural experiment stations (\$694,163.45), was as follows: Interest on the land grant of 1862, \$721,491.77; interest on other land

grants, \$96,960.70; United States appropriation under act of 1890, \$1,200,000; interest on endowment or regular appropriation, \$552,004.19; State appropriations for current expenses, \$3,048,422.22; State appropriations for buildings or other special purposes, \$2,313,060.53; endowment, other than Federal or State grants, \$671,888.10; tuition fees, \$881,195.30; incidental fees, \$607,980.94; miscellaneous, \$1,674,150.79; total, \$11,767,154.54. The value of the additions to the permanent endowment and equipment of these institutions in 1905 is estimated as follows: Permanent endowment, \$628,542.08; buildings, \$2,133,225.41; libraries, \$182,247.43; apparatus, \$173,589.42; machinery, \$153,025.78; live stock, \$50,712.36; miscellaneous, \$180,170.71; total, \$3,501,513.19.

The number of persons in the faculties of the colleges of agriculture and mechanic arts was as follows: For preparatory classes, 475; for collegiate and special classes, 2,062; total, 2,672. In the other departments the faculties aggregated 1,889, making a grand total of 4,561 persons in the faculties of the land-grant institutions.

The students in 1905 in colleges for white persons were as follows: (1) By classes—Preparatory, 5,072; collegiate, 20,020; short course or special, 10,196; postgraduate, 515; other departments, 17,830; total, 53,518. (2) By courses: *Four-year*—Agricultural, 2,526; horticulture, 112; household economy, 854; mechanical engineering, 4,227; civil engineering, 3,624; electrical engineering, 2,934; mining engineering, 1,022; chemical engineering, 379; architecture, 148. *Shorter*—Agriculture, 3,230; dairying, 617; horticulture, 38; veterinary science, 749; military tactics, 16,657.

The students in colleges and schools for colored persons were as follows: (1) By classes—Preparatory, 4,781; collegiate, 709; short or special, 409; other departments, 683; total, 6,294. (2) By courses—Agriculture, 1,624; industrial courses for boys, 2,494; industrial courses for girls, 3,428; military tactics, 1,566.

The graduates in 1905 were 5,061, and since the organization of these institutions, 62,081. The average age of graduates in 1905 was 22 years. The total number of volumes in the libraries was 2,141,465. The total number of acres of land granted to the States under the act of 1862 was 10,233,169, of which 44,164 are still unsold.

SUMMARY OF STATISTICS OF STATIONS.

Agricultural experiment stations are now in operation under the act of Congress of March 2, 1887, in all the States and Territories and under special appropriation acts in Alaska, Hawaii, and Porto Rico.

In Connecticut, New Jersey, New York, Hawaii, Missouri, Alabama, and Louisiana separate stations are maintained wholly or in part by State funds. A number of substations are also maintained in different States. Excluding the substations, the total number of stations in the United States is 60. Of these, 55 receive appropriations provided for by acts of Congress.

The total income of the stations maintained under the act of 1887 during 1905 was \$1,525,489.18, of which \$718,163.45 was received from the National Government, the remainder—\$807,325.73—coming from the following sources: State governments, \$540,467.31; individuals and communities, \$8,925.80; fees for analyses of fertilizers, \$92,183.03; sales of farm products, \$93,058; miscellaneous, \$72,691.59. In addition to this the Office of Experiment Stations had an appropriation of \$177,500 for the past fiscal year, including \$15,000 for the Alaska experiment stations, \$15,000 for the Hawaii Experiment Station, \$15,000 for the Porto Rico Experiment Station, \$20,000 for the nutrition investigations, \$67,500 for irrigation investigations, and \$5,000 for farmers' institutes. The value of additions to the equipment of the stations in 1905 is estimated as follows: Buildings, \$68,834.28; libraries, \$10,119.28; apparatus, \$19,166.09; farm implements, \$14,621.59; live stock, \$23,862.27; miscellaneous, \$19,016.20; total, \$155,619.72.

The stations employ 845 persons in the work of administration and inquiry. The number of officers engaged in the different lines of work is as follows: Directors, 56; assistant and vice directors, 18; special agents in charge, 3; chemists, 166; agriculturists, 58; agronomists, 44; animal husbandmen, 56; poultrymen, 12; horticulturists, 82; farm and garden foremen, 30; dairymen, 39; botanists, 56; plant pathologists, 11; entomologists, 65; zoologists, 4; veterinarians, 36; meteorologists, 8; foresters, 4; mycologists, 4; biologists, 3; physicists,

5; geologists, 8; bacteriologists, 18; irrigation engineers, 13; in charge of sub-stations, 27; secretaries and treasurers, 30; librarians, 12; clerks and stenographers, 46. There are also 54 persons classified under the head of "miscellaneous," including superintendents of grounds and buildings, gardeners, farm mechanics, laboratory assistants, etc. Four hundred and twenty-three station officers do more or less teaching in the colleges with which the stations are connected. During the year the stations published 403 annual reports and bulletins, which were supplied to over 731,000 addresses on the regular mailing lists. A larger number of stations than formerly supplemented their regular publications with more or less frequent issues of press bulletins and other special publications, and most of the stations report a large and constantly increasing correspondence with farmers on a wide variety of topics.

STATISTICS OF THE LAND-GRANT COLLEGES AND UNIVERSITIES. ^a

TABLE 1.—General statistics for 1905 of institutions established under the land-grant act of July 2, 1862.

[All of the institutions in this list, except those marked with an asterisk (*), maintain courses of instruction in agriculture.]

State or Territory.	Name of institution.	Location.	President.	Faculty.			Experi- ment sta- tion offi- cers.
				College of agricul- ture and mechanic arts.	Other depart- ments.		
Alabama	Alabama Polytechnic Institute.	Auburn.	C. C. Thach, M. A., LL. D.	39	8		13
Arizona	Agricultural and Mechanical College for Negroes.	Normal.	W. H. Council, Ph. D.	18			
Arkansas	University of Arizona.	Tucson.	K. C. Babcock, Ph. D.	26	21		7
	* Branch Normal College.	Fayetteville.	J. N. Tillman, B. LL.	21			
California	University of California.	Pine Bluff.	Isaac Fisher.	8			
Colorado	The State Agricultural College of Colorado.	Berkeley.	B. I. Wheeler, Ph. D., LL. D.	65	179		35
Connecticut	Connecticut Agricultural College.	Fort Collins.	B. O. Ayresworth, A. M., LL. D., Litt. D.	46			19
Delaware	Delaware College for Colored Students.	Storrs.	R. W. Stimson, A. M., B. D.	24			16
	University of Florida.	Newark.	G. A. Harter, M. A., Ph. D.	20			6
Florida	Florida State Normal and Industrial School.	Dover.	W. C. Jason, M. A., B. D.	9			
Georgia	Georgia State College of Agriculture and Me- chanic Arts.	Lake City.	Andrew Slead, A. M., Ph. D., LL. D.	23	2		14
	Georgia State Industrial College.	Tallahassee.	N. B. Young, M. A.	23			
	University of Idaho.	Athens.	H. C. White, Ph. D., D. C. L.	22			7
Idaho	University of Idaho.	Savannah.	R. R. Wright, A. M., LL. D.	14			
Illinois	Purdue University.	Moscow.	J. A. MacLean, A. M., Ph. D.	21	4		9
Indiana	Iowa State College of Agriculture and the Me- chanic Arts.	Urbana.	E. J. James, Ph. D., LL. D.	105	219		32
	Kansas State Agricultural College.	Lafayette.	W. E. Stone, Ph. D.	108	10		21
Kansas	Kansas State Agricultural College.	Ames.	A. B. Storms, A. M., D. D., LL. D.	105			26
Kentucky	The Kentucky Normal and Industrial Institute for Colored Persons.	Manhattan.	E. R. Nichols, A. M.	68	10		19
	Louisiana State University and Agricultural and Mechanical College.	Lexington.	J. K. Patterson, Ph. D., LL. D.	30	13		14
Louisiana	Southern University and Agricultural and Me- chanical College.	Frankfort.	J. S. Hathaway, M. A., M. D.	12	1		
	The University of Maine.	Baton Rouge.	T. D. Boyd, M. A., LL. D.	28			28
Maine	Princess Anne Academy.	New Orleans.	H. A. Hill.	17			
Maryland	Maryland Agricultural College.	Orono.	G. E. Fellows, M. A., Ph. D., LL. D.	50	12		13
Massachusetts	* Massachusetts Institute of Technology.	College Park.	R. W. Silvester, M. S.	22			16
	Michigan State Agricultural College.	Princess Anne.	Frank Trigg, M. A.	10			
		Amherst.	W. P. Brooks, Ph. D., LL. D.	28			22
Michigan		Boston.	H. S. Pritchett, Ph. D., LL. D.	188			
		Agricultural College.	J. L. Snyder, A. M., Ph. D.	75			11

AGRICULTURE APPROPRIATION BILL.

Minnesota	The University of Minnesota	Minneapolis	Cyrus Northrop, LL. D.	72	310
Mississippi	Mississippi Agricultural and Mechanical College	Agricultural College	J. C. Hardy, A. M., LL. D.	31	10
Missouri	Alcorn Agricultural and Mechanical College	Lorman	L. H. Kowan, B. S.	19	116
Montana	University of Missouri	Columbia	R. H. Jesse, LL. D.	32	9
Nebraska	Lincoln Institute	Jefferson City	B. F. Allen, A. M., LL. D.	8	11
Nevada	The Montana State College of Agriculture and Mechanic Arts	Bozeman	J. M. Hamilton, M. S.	31	
New Hampshire	The University of Nebraska	Lincoln	E. B. Andrews, LL. D.	43	156
New Jersey	Nevada State University	Reno	E. E. Stubbs, M. A., D. D., LL. D.	25	11
New Mexico	The New Hampshire College of Agriculture and the Mechanic Arts	Durham	W. D. Gibbs, M. S.	20	
New York	Rutgers Scientific School, The New Jersey State College for the benefit of Agriculture and the Mechanic Arts	New Brunswick	W. H. S. Demarest	40	3
North Carolina	New Mexico College of Agriculture and Mechanic Arts	Agricultural College	Luther Foster, M. S. A.	30	
North Dakota	Cornell University	Ithaca	J. G. Schurman, A. M., D. Sc., LL. D.	86	444
Ohio	The North Carolina College of Agriculture and the Mechanic Arts	Raleigh	G. T. Winston, A. M., LL. D.	36	10
Oklahoma	The Agricultural and Mechanical College for the Colored Race	Greensboro	J. B. Dudley, A. M., LL. D.	10	
Oregon	North Dakota Agricultural College	Agricultural College	J. H. Worst, LL. D.	33	17
Pennsylvania	Ohio State University	Columbus	W. O. Thompson, A. M., D. D., LL. D.	112	28
Rhode Island	Oklahoma Agricultural and Mechanical College	Stillwater	A. C. Scott, A. M., LL. M.	12	
South Carolina	Agricultural and Normal University	Fangsila	T. M. Pugh, M. A., Ph. D.	12	
Tennessee	Oregon State Agricultural College	Columbia	G. W. Aberton, LL. D.	33	10
Texas	The Pennsylvania State College	State College	K. L. Butterfield, A. M.	61	20
Utah	Rhode Island College of Agriculture and Mechanic Arts	Kingston	P. H. Mell, M. E., Ph. D., LL. D.	26	11
Vermont	The College of Agriculture of South Carolina	Clemson College	T. E. Miller, LL. D.	44	19
Virginia	The College of Normal, Industrial, Agricultural, and Mechanical College of South Carolina	Orangeburg	R. L. Single	18	8
Washington	South Dakota Agricultural College	Brookings	Brown Ayres, Ph. D., LL. D.	35	13
West Virginia	University of Tennessee	Knoxville	H. H. Harrison, M. S.	43	12
Wisconsin	Agricultural and Mechanical College of Texas	College Station	E. L. Blackshear	44	16
Wyoming	Agrie View State Normal and Industrial College	Paairie View	W. J. Kerr, D. Sc.	7	12
	Agricultural College of Utah	Logan	M. H. Buckham, D. D., LL. D.	58	18
	University of Vermont and State Agricultural College	Burlington	J. M. McBryde, Ph. D., LL. D.	36	11
	The Virginia Agricultural and Mechanical College and Polytechnic Institute	Blacksburg	H. B. Frissell, D. D., LL. D.	57	21
	Horton Normal and Agricultural Institute	Hampton	E. A. Bryan, M. A., LL. D.	125	14
	State College of Washington	Pullman	D. B. Purinton, Ph. D., LL. D.	55	16
	West Virginia University	Morgantown	J. McH. Jones, A. M.	45	19
	The West Virginia Colored Institute	Institute	C. R. Van Hise, Ph. D.	3	29
	University of Wisconsin	Madison	F. M. Tisdell, Ph. D.	58	199
	University of Wyoming	Laramie		14	4
Total				2, 672	1, 889

^a Including also institutions receiving apportionments from the appropriation of 1890.

***b* Acting president.**

TABLE 2.—Students, revenue, and additions to equipment for year ended June 30, 1905.

State or Territory.	Students.			Revenue.				United States appropriation for experiment stations.	Additions to equipment.
	Agriculture and mechanic arts.	Other departments.	Total.	Graduates in 1904-5.	Federal aid.	State aid.	Fees and all other sources.	Total.	
Alabama (Auburn)	515		515	51	\$84,355.00	\$25,445.11	\$8,238.08	\$88,039.19	\$12,572.16
Alabama (Normal)	167	220	387	127	10,925.00	4,000.00	500.00	15,425.00	13,000.00
Arizona	194		194	1	25,000.00	25,197.56	4,753.31	54,950.86	6,513.68
Arkansas (Fayetteville)	825	460	1,285	34	22,081.82	123,237.08	4,070.00	149,388.90	8,000.00
Arkansas (Pine Bluff)	125		125	7	6,818.18	668,703.49	400.00	1,17,868.18	
California	a 1,984	2,316	4,300	345	76,390.19	10,844.14	472,866.40	1,17,868.18	389,574.77
Colorado	496		496	14	31,161.61	64,042.54	10,844.14	106,048.29	15,000.00
Connecticut	123		123	4	32,049.63	20,000.00	50,523.56	82,573.19	15,000.00
Delaware (Newark)	121		121	25	24,980.00	7,500.00	7,899.10	40,379.10	7,500.00
Delaware (Dover)	117		117	5	6,000.00	2,000.00	5,468.00	12,468.00	15,000.00
Florida (Lake City)	225		225	7	20,210.00	12,237.88	11,192.93	43,640.81	15,000.00
Florida (Tallahassee)	274		274	27	12,500.00	1,000.00		13,500.00	15,000.00
Georgia (Athens)	184		184	9	83,620.81	8,000.00	657.61	94,278.42	59,250.00
Georgia (Savannah)	418		418	13	8,353.33	52,428.15		16,333.33	15,000.00
Idaho	333		333	14	25,000.00	52,428.15	867.15	78,295.30	118,806.58
Illinois	3,729	2,118	5,847	256	58,000.25	625,200.00	266,849.78	861,050.04	180,458.00
Indiana	1,534		1,534	228	42,000.00	221,170.32	66,619.51	329,790.03	33,700.00
Iowa	1,804	176	1,980	166	60,255.03	851,300.00	34,446.57	446,211.60	23,400.47
Kansas	1,462		1,462	103	80,647.89	91,380.00	9,506.00	151,533.89	19,075.00
Kentucky (Lexington)	a 602	86	688	64	30,019.50	37,623.54	6,370.37	74,210.41	15,000.00
Kentucky (Frankfort)	166		166	12	4,850.50	8,000.00	4,354.40	17,854.90	230.00
Louisiana (Baton Rouge)	408		408	38	27,714.31	35,000.00	30,798.40	93,512.71	9,424.25
Louisiana (New Orleans)	409		409	28	30,915.00	10,000.00	84,838.50	122,653.50	
Maine	452	105	557	13	25,817.18	66,000.00	35,933.23	127,020.41	15,000.00
Maryland (College Park)	237		237	10	5,000.00		2,784.94	7,784.94	8,697.36
Maryland (Princess Anne)	166		166	30	27,076.87	51,557.27	468,416.38	82,416.38	15,000.00
Massachusetts (Amherst)	1,561		1,561	244	14,626.46	25,000.00	468,416.38	416,042.84	77,043.25
Massachusetts (Boston)	1,009		1,009	45	34,722.46	100,500.00	150,172.29	249,395.21	15,000.00
Michigan	1,191	2,599	3,790	401	47,500.45	480,500.00	188,512.72	696,513.17	109,893.61
Minnesota (Agricultural College)	1,731		1,731	35	25,255.67	14,500.00	31,890.40	71,645.07	6,680.00
Mississippi (Lorman)	609		609	216	55,455.50	285,748.31	59,601.23	398,805.04	15,000.00
Missouri (Jefferson City)	a 1,068	1,352	2,420	34	1,552.50	25,000.00	7,924.29	25,476.79	10,455.30
Montana	295		295	208	84,000.00	837,250.00	369,868.00	451,118.00	157,000.00
Nebraska	862	1,870	2,732	392	31,090.87	10,675.00	2,498.42	44,264.29	7,897.30
Nevada	206	61	267	10	30,900.00	10,500.00	98,227.41	78,627.41	3,867.65
New Hampshire	159		159	39	30,900.00	2,473.12	25,415.51	58,688.63	15,814.84
New Jersey	328	64	392	6	25,000.00	12,468.41	4,279.73	41,688.14	2,900.00
New Mexico	237		237						

New York.....	2,232	4,261	610	59,428.80	65,000.00	1,108,985.23	1,228,414.03	13,500.00	168,220.10
North Carolina (Raleigh)....	472	172	40	24,250.00	25,000.00	26,215.27	75,465.27	15,000.00	68,855.97
North Carolina (Greensboro)...	195	133	8	8,450.00	11,250.00	19,677.41	19,677.41	15,000.00	8,836.06
North Dakota.....	791	721	5	85,843.66	124,297.95	9,003.53	171,617.11	15,000.00	88,370.16
Ohio.....	1,013	822	209	61,769.01	385,414.40	80,427.80	477,610.71	15,000.00	821,897.57
Oklahoma (Stillwater).....	522	43	30	31,624.00	17,825.71	9,615.56	59,105.26	15,000.00	19,147.57
Oklahoma (Langston).....	316	365		32,500.00	19,164.00		21,664.00	15,000.00	4,232.00
Oregon.....	680		50	35,827.11	25,000.00	3,636.56	63,941.66	15,000.00	6,827.21
Pennsylvania.....	6,349	3,249	94	50,827.13	130,785.34	68,406.47	249,893.24	15,000.00	275,000.00
Rhode Island.....	147	147	4	27,500.00	46,500.00	42,000.00	78,000.00	15,000.00	1,150.00
South Carolina (Clemson College)	673	673	40	18,254.00	118,820.12	42,044.88	179,118.50	15,000.00	7,108.47
South Carolina (Orangeburg)....	815	815	45	18,254.00	118,820.12	42,044.88	179,118.50	15,000.00	7,275.00
South Dakota.....	488	488	26	36,158.67	31,500.00		25,754.00	15,000.00	2,000.00
Tennessee.....	406	730	27	49,210.00	110,000.00	14,910.67	82,589.34	15,000.00	7,890.79
Texas (College Station).....	414	414	39	33,630.00	110,000.00	23,871.46	78,081.46	15,000.00	108,387.00
Texas (Prairieview).....	379	379	30	6,250.00	20,500.00	2,085.00	145,095.00	15,000.00	1,550.00
Utah.....	733	733	19	92,894.70	44,313.90	15,840.29	82,048.89	15,000.00	11,939.84
Utah.....	348	541	43	33,130.00	71,000.00	43,698.03	147,834.67	15,000.00	144,099.00
Vermont.....	731	731	77	37,924.67	122,500.00	27,010.09	186,834.67	15,000.00	102,717.71
Virginia (Blacksburg).....	1,281	1,281	36	18,662.69	67,500.00	192,182.08	210,844.77	15,000.00	190,000.00
Virginia (Hampton).....	793	793	15	30,000.00	67,500.00	19,604.72	117,109.72	15,000.00	4,138.88
Washington.....	149	956	50	26,637.16	125,487.50	20,976.56	178,101.25	15,000.00	27,000.00
West Virginia (Morgantown).....	67	133	16	6,000.00	31,000.00	8,002.60	44,002.60	15,000.00	15,694.70
West Virginia (Institute).....	1,330	3,413	409	70,191.21	505,580.00	230,210.70	795,901.91	15,000.00	202,714.51
Wisconsin.....	205	78	17	28,407.67	14,869.74	700.85	44,478.25	15,000.00	7,324.64
Wyoming.....									
Total.....	41,299	18,513	5,061	2,018,452.47	5,913,486.94	3,885,215.13	11,767,154.54	694,163.45	3,501,513.19

a Including summer school.

b Including correspondence courses.

STATISTICS OF THE AGRICULTURAL EXPERIMENT STATIONS.

TABLE 3.—General statistics, revenue, and additions to equipment, 1905.

Station.	Location.	Director.	Num- ber of teach- ers on staff.	Num- ber of publica- tions dur- ing fiscal year 1904-5.	Number of ad- dresses on mail- ing list.	Revenue.			Addi- tions to equip- ment.
						Hatch fund.	State.	Other sources.	
Alabama (College)	Auburn	J. F. Duggar, M. S.	13	5	206	\$15,000.00		\$18,290.70	\$33,290.70
Alabama (Canebrake)	Uniontown	J. M. Richeson, M. S. a	3	1	32		\$2,500.00	610.39	3,110.39
Alabama (Tuskegee)	Tuskegee	G. W. Carver, M. A.	9	1	10				1,500.00
Arizona	Fayetteville	R. H. Forbes, M. S.	7	4	111	15,000.00	13,698.86		29,738.27
Arkansas	Berkeley	W. G. Vinebaker	10	5	106	15,000.00		1,040.41	16,040.41
California	Fort Collins	E. W. Hilgard, Ph. D., LL. D.	35	19	509	15,000.00		1,567.33	16,567.33
Colorado	New Haven	L. G. Carpenter, M. S.	19	10	296	15,000.00			15,000.00
Connecticut (State)	Storrs	E. H. Jenkins, M. S.	19	7	699	15,000.00			15,000.00
Connecticut (Storrs)	Storrs	L. A. Clinton, M. S.	15	10	382	7,500.00			7,500.00
Delaware	Newark	A. T. Neale, A. M., Ph. D.	6	5	164	15,000.00			15,000.00
Florida	Lake City	P. H. Rolfs, M. S.	14	8	284	15,000.00			15,000.00
Georgia	Experiment	R. J. Redding	7	1	134	15,000.00	637.87		15,637.87
Idaho	Moscow	H. T. French, M. S.	9	6	123	15,000.00			15,000.00
Illinois	Urbana	Eugene Davenport, M. Agr.	32	8	834	15,000.00			15,000.00
Indiana	Lafayette	Arthur Goss, M. S., A. C.	21	8	332	15,000.00			15,000.00
Iowa	Ames	C. F. Curtiss, M. S., A. C.	26	15	196	15,000.00			15,000.00
Kansas	Manhattan	J. T. Willard, M. S.	19	7	434	15,000.00			15,000.00
Kentucky	Lexington	M. A. Scovell, M. S.	14	1	241	15,000.00			15,000.00
Louisiana (Sugar)	New Orleans	W. R. Dodson, A. B., B. S.	28	2	384	15,000.00			15,000.00
Louisiana (State)	Baton Rouge	do.	13	4	444	15,000.00			15,000.00
Louisiana (North)	Calhoun	C. D. Woods, Sc. D.	16	7	251	15,000.00			15,000.00
Maine	Orono	H. J. Patterson, B. S.	22	8	421	15,000.00			15,000.00
Maryland	College Park	W. P. Brooks, Ph. D.	11	8	602	15,000.00			15,000.00
Massachusetts	Amherst	C. D. Smith, M. S.	12	8	258	15,000.00			15,000.00
Michigan	Agricultural College	W. M. Liggett	19	8	5	15,000.00			15,000.00
Minnesota	St. Anthony Park	W. L. Hutchinson, M. S.	12	7	288	15,000.00			15,000.00
Mississippi	Agricultural College	H. J. Waters, B. S., A.	26	17	393	15,000.00			15,000.00
Missouri (College)	Columbia	Paul Evans	5	3	37	15,000.00			15,000.00
Missouri (Fruit)	Mountain Grove	F. B. Linfield, B. S., A.	11	10	276	15,000.00			15,000.00
Montana	Bozeman	E. A. Burnett, B. S.	19	12	188	15,000.00			15,000.00
Nebraska	Lincoln	J. E. Burnett, B. S.	10	6	120	15,000.00			15,000.00
Nevada	Reno	LL. D.	14	8	116	15,000.00			15,000.00
New Hampshire	Durham	W. D. Gibbs, M. S.	14	2	621	15,000.00			15,000.00
New Jersey (State)	New Brunswick	E. B. Voorhees, D. Sc.	8	4	343	15,000.00			15,000.00
New Jersey (College)	do.	do.	12	9	188	15,000.00			15,000.00
New Mexico	Agricultural College	Luther Foster, M. S., A.	24	1,077		1,500.00			1,500.00
New York (State)	Geneva	W. H. Jordan, D. Sc.	25						

New York (Cornell).....	Ithaca.....	20	17	11	443	14,128	13,500.00	10,000.00	210.95	23,710.95	1,595.77
North Carolina.....	Raleigh.....	10	7	4	204	30,000	15,000.00	914,000.00	771.35	29,771.35	7,706.61
North Dakota.....	Agricultural College.....	17	10	5	527	10,800	15,000.00	5,000.00	65,479.86	25,479.86	7,909.66
Oklahoma.....	Wester.....	24	9	245	45,000	45,000	15,000.00	652,470.16	610,634.51	78,104.67	7,029.96
Oregon.....	Stillwater.....	12	9	104	21,943	21,943	15,000.00	61,421.65	62,837.86	13,259.63	1,206.04
Pennsylvania.....	Corvallis.....	10	7	6	132	5,500	15,000.00	61,141.68	17,988.21	16,516.27	1,859.10
Rhode Island.....	State College.....	20	7	8	339	16,140	15,000.00	61,141.68	17,988.21	34,129.80	474.79
South Carolina.....	Kingson.....	11	4	8	326	9,000	15,000.00	1,620.83	3,738.45	18,738.45	1,790.40
South Dakota.....	Clemson College.....	19	11	26	318	11,200	15,000.00	1,000.00	6,596.04	20,216.87	1,670.06
Tennessee.....	Brookings.....	13	8	6	205	9,500	15,000.00	1,000.00	8,140.73	19,140.73	1,114.78
Texas.....	Knoxville.....	12	8	4	70	6,800	15,000.00	6,000.00	6,167.99	22,612.37	1,058.98
Utah.....	College Station.....	16	10	5	310	25,000	15,000.00	6,000.00	1,635.43	16,635.43	1,488.12
Vermont.....	Lorain.....	18	11	2	468	11,600	15,000.00	1,545.72	2,850.24	19,395.96	3,893.46
Virginia.....	Blackburg.....	11	5	9	164	10,000	15,000.00	1,545.72	55.47	15,055.47	2,976.90
Washington.....	Pullman.....	21	15	7	193	5,450	15,000.00	1,545.72	225.10	15,225.10	5,290.10
West Virginia.....	Morgantown.....	14	12	5	202	10,000	15,000.00	1,545.72	14,773.65	29,773.65	5,290.10
Wisconsin.....	Madison.....	16	7	15	966	17,500	15,000.00	18,500.00	1,975.00	35,475.00	5,847.41
Wyoming.....	Laramie.....	29	22	6	220	3,200	15,000.00	18,500.00	604.30	15,604.30	2,430.00
Total.....		84	423	408	15,588	731,408	718,163.45	540,467.31	266,858.42	1,525,489.18	155,619.72

^a Assistant director in charge.

^b Including balance from previous year.

^c For substitutions.

^d Including substitutions.

^e For fiscal year ended October 31, 1905.

^f Estimated amount of State appropriation spent for experimental purposes for fiscal year ended October 1, 1905.

^g Estimated amount of State appropriation spent for experimental purposes for fiscal year ended December 1, 1905.

Recommended for publication.

A. C. TRUE, Director.

Publication authorized.

JAMES WILSON, Secretary of Agriculture.

WASHINGTON, D. C., February 1, 1906.

Now, why should an institution of this kind come to the Federal Treasury asking for aid at this particular time? They need funds all the time. That is to say, they depend upon the State and Federal Treasury to furnish it. Of course there is a difference of opinion, I presume, as to how far the Federal Government should undertake enterprises of this sort. That was thrashed out originally in the act of 1862. Now, no matter what a man's opinion might be on the subject of State and Federal aid, it has always occurred to me that a complete justification of the appropriations from the Federal Treasury at that time is the fact that it initiated a movement in education which unquestionably would not have been initiated and could not have been initiated by the several States. In other words, it inaugurated the movement at the proper time, and made the appropriation, and compelled each State in the Union to begin this kind of work; whereas if sporadic efforts had been made in the several States they probably would have amounted to very little. Indeed, we know they would not have amounted to very much, because some States—Michigan, for example—had established farm schools and colleges of agriculture, but they had a very dreary existence until the passage of this act, which gave an inspiration to the people at large. So that was a complete justification, and the results justified the initiation by the General Government of work of this character.

Now, being initiated, to what extent it should be maintained is of course a question for you gentlemen to decide. We need the money. It occurs to us that at this particular time, as I say, there is a good reason why the Federal Treasury might be called upon for additional appropriations, and that reason is this: We have formulated courses pretty well in the colleges, and we want to carry that work back into the secondary schools and the primary schools. In some of the States of the Union, notably my own State of Georgia, we are establishing, under the control of the State, agricultural high schools in Congressional districts. They have established them, too, in Minnesota and elsewhere, and the colleges of agriculture and mechanic arts will be called upon to furnish trained teachers and men to do the work of these institutions. If that can be made a general movement the country over, as I believe it can only be made by some such small gift as this on the part of the General Government, calling the attention of each one of the States and of all the people interested in this work, why, we hope and have reason to believe that that kind of education will be productive of very beneficial results.

Senator PERKINS. Do you not think, Doctor, that the policy now pursued by the Government, through the Agricultural Department, of establishing in the respective States experimental stations, and taking up and dealing with practical questions, is of more benefit to the public, or if not of more benefit that they are carrying out the work which you initiated and inaugurated in our respective State universities? Do you not approve of the plan of experimental stations in the respective States?

Doctor WHITE. Oh, they are admirable. They constitute the research department, and all of us are trying to make the experiment stations a research department of investigation for the ascertainment of new truth, and we need new truth. I hate to take so much of the time of the committee, but if I had the time I think I could make it evident that the consensus of opinion of men engaged in scientific

work in agriculture is that we have reached the point where we must push beyond the boundaries of present knowledge in order to obtain for the farmer what pure science may give him. We have had that matter under consideration and discussion.

Senator PERKINS. Some of the committee have had this opinion: You have already established in the universities these chairs of agriculture, where you are teaching your theoretical scientific facts, which are now being put into practical effect in these experiment stations. Now, if the Government makes an additional appropriation for these agricultural colleges, will it not hamper the appropriations for these experiment stations?

Doctor WHITE. I think not, more particularly as you have already taken care of the latter. That was done at the last session of this present Congress in the Adams Act.

Senator PERKINS. Yes; but they want more.

Doctor WHITE. Very possibly.

The CHAIRMAN. We are giving \$5,000 a year to the experiment station.

Senator PERKINS. Still they are asking for more, and asking better practical results, and are claiming better practical results from their work than we are getting from the theoretical instruction in the universities.

Doctor WHITE. The functions of the two institutions are somewhat supplemental to each other. Perhaps I should have said that I represent the organization of American agricultural colleges and experiment stations, and I am quite clear—those are the men engaged in this work, the teachers and the investigators and the men who go to the people, the farmers' institute workers, and all that—and I am quite clear, and I think my friends here will substantiate what I say, that if it were left to them they would favor this appropriation as being of the utmost value to the great work of agriculture in the scientific and investigative department. I will yield to Doctor True to express his opinion on that.

Dr. A. C. TRUE. The greatest hindrance to the progress of the Department of Agriculture and the agricultural experiment stations, and the greatest hindrance to the effective application of the results of experiment-station work lies in the general ignorance on the part of the masses of our agricultural people of the things that lie at the foundation of what the stations are working out. So that if we could increase the agricultural education of the country and diffuse it more widely, as Doctor White has suggested, we would be able to reach the people much more effectively with the results of the work of the experiment stations. The two things go together in that way, in my judgment.

Doctor WHITE. I thank Doctor True for expressing so well just what is the fact, or what we believe to be the fact. We think, of course, that any amount of money that might be judiciously given by the Congress would be expended to very excellent effect.

Now, there is another point I had in mind. Of course it might be said, "Well, let the States supplement this;" but this peculiar kind of education does not affect one State alone. It is a unified education. The States have their own educational systems, which are peculiar to themselves and ought to be, but this kind of education is pretty much the same the country over, and the men who conduct it go

from one State to another; and we in Georgia, for example, are not confined within the bounds of Georgia. The results of the work which we do, even under our State appropriations, are not confined to Georgia alone, for this particular kind of education goes all over the country. Therefore this stands upon a little different plane from localized institutions.

Then, gentlemen, not to take any more of your time, I have this also in mind: Congress has been very liberal in the matter of making appropriations for the celebration of a great historical event at Jamestown during the present year, and of course very properly; but there is still another anniversary which might well be celebrated this year and that is the semicentennial of the founding of the first agricultural college in America. There was founded in Michigan fifty years ago a college of this character, and they worked out their own salvation for a while in rather a small way until the Congress supplemented it. Still they have had a corporate existence for that length of time, and the work which they have done can be attested, of course, by any man in Michigan. Pardon the introduction of sentiment, but it occurs to me that it might not be inappropriate for the Congress to signalize the jubilee of the establishment of the first genuine agricultural college in America by recognizing the work of these institutions in the way that I have suggested.

I thank you very much for your attention, and, with your permission, I should like to present Dr. W. O. Thompson, president of Ohio State University.

STATEMENT OF DR. W. O. THOMPSON, PRESIDENT OF OHIO STATE UNIVERSITY.

Doctor THOMPSON. Mr. Chairman and gentlemen of the committee, I happen to be from Ohio, where there never would have been a State University possible but for the fact that the College of Agriculture and Mechanic Arts formed the foundation on which it was built, and the nucleus around which it was constructed; so that we in Ohio have always been interested in the development of education that has come from this original land grant.

Reference has been made here to the effect that this movement has had upon other colleges. Permit me to offer a few remarks from the standpoint of my own geography.

The original land scrip that came to Ohio was sold under the direction of the legislature, and yielded us something less than \$400,000. Subsequent to that the legislature of Ohio, having certain interests in the Virginia military district, turned over to us those lands. Certain other gentlemen who were interested in the cause of education left their estates to the university, and now we have \$790,000 in that interest-bearing fund. That is the result of the stimulus received from this first Morrill Act. The growth of that institution in that direction illustrates in a small way what has been true the country over.

The development of education through this act has been referred to here, and the large amounts of money that have been appropriated from year to year; but I think it is well for us to remember that in initiating this movement of education for agriculture and the mechanic arts, we have stimulated the whole central Northwest Ter-

ritory perhaps as much as any other portion of the country. The last legislature made provision for \$1,259,000 for the support of the University of Ohio.

When the original act was passed, the college ran for four years, and the State even refused to pay the expenses of the trustees. That is, it was at first assumed that what the United States had done would be sufficient to maintain this school for all time to come, and so for four or five years the State refused even to pay the expenses of the trustees; but starting from that point, they have now reached the point where, at a single session of the State legislature, they can appropriate more than a million dollars for the maintenance and development of it. That is an example of what may be termed the developmental functions of the Government, entered into as a result of this policy of expansion in education, and Ohio is to be looked upon as peculiar in this phase, that this institution has grown up with forty other colleges right around it in the State. All those forty colleges have prospered and thrived, and there have never been as many students in all of them as there are to-day. There is not a single institution in the State that has suffered, but meantime there has risen up an institution with more than two thousand students, as the result of the stimulus that has come from this particular phase of education.

Now, the Senator has made reference to the Department of Agriculture in its relation to these colleges. I should like to offer just a word in that regard. The Association of Agricultural Colleges and Experiment Stations, some years ago, in discussing what the function of these colleges should be, has outlined the course of study in a large way, and we have five distinct lines in which it is their judgment that these colleges ought to offer opportunity.

Instead of the one subject of agriculture, it has been subdivided into a number of phases. For example, there is the department of animal husbandry. That has to do with the question of stock breeding, the production of stock, and stock improvement. That is one distinct line. Then we have the proposition of farm crops, or agronomy, as it is technically called, which has to do with the production of field crops.

Then there is the proposition of dairying. There is the line of rural engineering, which has to do with the laying out of farms, their drainage, and their general improvement as a means of producing revenue. This subdivision of the subjects has greatly enlarged the function of the college. For example, we now have three men in the department of field crops in the college, three in the department of animal husbandry, two men in the department of rural economics or farm management, and are proposing now the training of men for the department of rural engineering. They are difficult to find. We have three men in the department of dairying. Those are the five lines into which the subject has been subdivided.

To show the problem with which these colleges have to deal, I may state that when we proposed to develop this department of rural engineering we could not find anybody anywhere in the country but who was so tightly fastened down that we could not move him into our service; but through the munificence of one of our friends we have been able to endow a young man to pursue this subject for three or four years, to get ready to teach the subject of

rural engineering in our institution. He is already a graduate of a college of agriculture, but in addition to his instruction in agriculture he is going into the technical phase of the matter as a rural engineer. This is in line with the large development of the country that is being made in farming, under the general head of irrigation and the like, as you very well know.

Senator LATIMER. Under that head of rural engineering, his duty would also be to protect the soil? For instance, we have a great deal of terracing in the South, because protection is necessary on account of the leaching out of the soil by the winter rains. That would be a part of the work?

Doctor THOMPSON. That would be a part of the work of the rural engineer. In fact, it is to develop that whole subject of the engineering phase of agriculture. One represents the dairying phase, another field-crop production, another animal husbandry, so that there seems to be a pretty well-defined field. This is a very much larger idea than ever was anticipated at the beginning. It is practically a generation since 1862, when this began, and it may be of interest to recall to you, gentlemen, the fact that when the bill was originally passed it was vetoed by President Buchanan; and if you will look up his veto message you will find that he objected to it on the ground that it would interfere with the State development of education. And that view of President Buchanan was not peculiar to him, but was expressed in the debate on the bill by Members of the Senate and House, and that view was also expressed by many educators at the time. So President Buchanan may be said to have voiced the sentiment of a great many people, that this would repress the movement of the States in education.

But now, what is the result of the experience of a generation? Instead of repressing, it has developed the activity of the States, and it may be said, therefore, that this is really a national movement. It has done as much as any other force in the direction of national development. I do not think it out of the way to say that no more patriotic movement has ever been engaged in on the part of this nation than this movement. Men go out from these colleges to the East, West, North, and South. We have graduates of our institution teaching in Northern States, and also in the far South, and men from the South teaching in the North, and we meet together annually and discuss these problems of education in the interest of the people of all this country, the industries of this country, the practical pursuits of the people; and there is no organization in America that meets to-day that has more unity, more earnestness, more devotion to its cause than this American Association of Agricultural Colleges and Experiment Stations. It has brought the people in all these regions to see their differences—that is, the difference in their needs—and to see their unities. They are united in their purposes of cooperation, and doing more to maintain a general stability of interest and purposes than anything I happen to be acquainted with.

Now, on the ground of the justification of this proposition, let me say just a word. The opinion has long been entertained, and I think it is a fallacious one, that education is a burden that civilization has to carry. I should like to put myself on record in favor of the idea that civilization is a burden which education must carry. I regard

education as the most fundamental developmental function in which government ever engages, and, therefore, the money that we give—State, local, or national—for the purpose of developing the industries of the people is money that is helping to carry the burden of civilization. That is my deliberate judgment, and I am willing to be held to account for it. I have not the time to debate that with you, but I do not regard it as necessary to debate it, and, taking that view for a moment, I call your attention to the fact that these colleges of agriculture and the mechanic arts have had to do with the fundamental industries of the country. They have had to do with the question of soils, with the question of our mines, and our industries that arise immediately out of those two things. This, in the judgment of Senator Morrill, was a movement to touch the industrial classes of the country, and everybody who is at all familiar with it knows that it has touched that class in a larger way than it ever has been touched by any other educational institution, except the public schools, which are not under consideration here at present.

And in this connection it is well for us to notice the policy of the Government from the beginning. The National Government has given its public lands for the endowment of the public schools. All over the northwest territory every sixteenth section goes to that cause. We have deliberately proceeded upon the theory that the public lands were the people's endowment, and we have gone further and said "to use that endowment in the interest of popular education is the best possible use that can be made of it." Upon that proposition these colleges of agriculture and the mechanic arts are fundamentally based, for we are using the public endowment here in the interest of the whole people, as related to their fundamental industries, agriculture and the mechanic arts.

Senator PERKINS. This bill provides:

In addition to the sums named in the said act, for the fiscal year ending June thirtieth, nineteen hundred and eight, and an annual increase of the amount of such appropriation thereafter for four years by an additional sum of five thousand dollars over the preceding year, and the annual sum to be paid thereafter to each State and Territory shall be fifty thousand dollars, to be applied only for the purposes of the agricultural colleges as defined and limited in the act of Congress approved July second, eighteen hundred and sixty-two, and the act of Congress approved August thirtieth, eighteen hundred and ninety.

Now, that means the forty-five States, the Territory of New Mexico, the Territory of Arizona, and the Territory of Hawaii. Alaska is a district, not a Territory.

Doctor THOMPSON. I do not think Hawaii has any institution of this character.

Senator PERKINS. It is a Territory, and it has done more for the development, or certainly as much, as any Territory in the Union.

Doctor THOMPSON. Yes; but just on the technical point, the original act provided that those States that would might take the benefit of this act, and a time limit was placed within which they might do so, and that was afterwards extended; but I do not understand that this would apply to new Territories, although I have not the slightest objection to its doing so.

Senator PERKINS. That amounts in the aggregate to how much?

Doctor THOMPSON. It would in the course of four years simply double the present appropriation. We are now receiving \$25,000

for each institution under the proceeds of the second Morrill Act, as it is sometimes called—the act of 1890.

Senator PERKINS. Alaska is susceptible of very great agricultural development, as you are aware.

Doctor THOMPSON. Yes.

Senator PERKINS. This would scarcely apply to Alaska, because it is not a Territory, but I think it would to Hawaii.

Doctor THOMPSON. Well, it probably would.

Senator PERKINS. And it ought to. Hawaii has made wonderful development in her varied agricultural resources, as you are aware.

Doctor THOMPSON. I myself put the proposition simply on its merits, that this is one of the developmental functions of the Government, and that the money invested in this development of the fundamental industries of the people has been one of the best investments of money that the nation has ever made. I would be willing to stand on that proposition and debate it to a finish with anybody who cared to debate the other side of the question; and I think the history of this generation, since the passage of the act of 1862, has abundantly justified that remark, and has abundantly justified what has been done for it.

Senator PERKINS. Do you know what the public sentiment is in the New England States and perhaps in the Middle States in regard to this appropriation?

Doctor THOMPSON. Not specifically, except as I have heard the expressions of the individual men whom I have met in educational circles. I do not happen to have any business in New England, except at rare intervals.

Senator PERKINS. Senator Burnham is from New Hampshire, and I was born in Maine, and we had pretty hard sledding when I was a boy; that was the reason I went west.

Doctor THOMPSON. I do not know that I care to consume more of your time. I want simply to say, without a formal vote of confidence, as the English brethren call it, I think what I say would be echoed and indorsed in the great Central West, from which I happen to come, in Ohio, Indiana, Michigan, Iowa, Wisconsin, and so forth.

Senator PERKINS. I think the Pacific coast States would not object to receiving it.

Senator FRAZIER. I see nothing in this bill that indicates the particular mode in which this additional sum shall be expended. Is it the purpose and intent of those who advocate it to continue the experimental work of these stations, or is it for the purpose of creating chairs of agriculture?

Doctor THOMPSON. By referring to the bill you will see that this is to be expended in accordance with the act of 1862 and the act of 1890. Now, the act of 1862 provided for colleges of agriculture and the mechanic arts, and had nothing to do with the experiment stations, and the act of 1890 proceeded further in that direction and limited the instruction to certain subjects. Now, this is to supplement that instruction. This would not be applied in the direction of experimental station work, but the provision is made that it may be used for the preparation of teachers, and since that subject is referred to I beg to say, taking Ohio for example, we are undertaking to develop in the interest of agriculture, rural schools by agricultural extension. We reach now 10,000 rural schools with a bulletin every month.

That can not be done except by some central authority. We are doing that at the present time out of the money given us by the State of Ohio.

Senator PERKINS. I should like to ask Senator Frazier what are the conditions in Tennessee? Senator Frazier, I believe, is ex officio president of that State institution, is he not?

Senator FRAZIER. I am one of the trustees, and was also a trustee before I was governor, but our State university has grown up as a result of this appropriation. A very small institution was in existence there, but when that fund was donated in the original Morrill Act it was by the legislature of Tennessee turned over to this institution, from which the State university subsequently grew up.

Senator PERKINS. That is the way with California. The work there has been largely on the lines of experimental work in agriculture, and it has accomplished very great and satisfactory results.

Doctor THOMPSON. In some of these institutions, like Illinois, the experiment station is located at the State university. In Ohio the State experiment station is located at Wooster, a hundred miles away. We operate the college of agriculture for teaching purposes only. The very closest harmony exists between ourselves as a school of agriculture and them as an experiment station. Some of our graduates are aiding in the experimenting there. They find it difficult to obtain men to do the work that the experiment station wants to have done. These men must be trained in colleges of agriculture. They can not be trained at the ordinary scientific schools and universities. They must be trained in connection with agricultural problems, just as our engineer has got to be trained in our technical schools, and the men who experiment in these different stations all over the country must get their training in an atmosphere of agricultural improvement.

You never can make a great teacher of agriculture out of a man who is out of sympathy with it; and so, in order to keep men in sympathy with that form of education, we have got to train them in the type of schools that believe in it, and until we can get the agricultural interest of the country thoroughly aroused, thoroughly self-respecting, they have no great future before them and never can have. These schools have done more to arouse the self-respect of the agricultural classes, to arouse their enthusiasm in that business, to convince them of the value of it, than any other enterprise; and those things have accomplished great results for us in Ohio, and they will accomplish great results wherever you give them a chance. It seems to me that the problem now is simply whether this nation in its present prosperous condition will undertake to reenforce thirty years of its own history and increase its contribution by this amount, and thus further stimulate this cause, or whether we shall put it off until some more convenient season. That seems to me to be the practical proposition.

Senator LATIMER. What proportion of your graduates continue in agriculture?

Doctor THOMPSON. We have a record of them all. That is, we keep in touch with every graduate of our school of agriculture as far as possible, and the last statement we made showed that about 75 per cent of our graduates were either actually engaged in operating their own farms or other men's farms, or engaged in teaching agriculture,

or in some other phase of it. I do not know how many of our graduates are here in Washington, in the Department of Agriculture. We regard these men as still working in a phase or department of agriculture. They are young men who came here to work under the supervision of the Department of Agriculture in some field of agricultural investigation. Doctor True, of the Experiment Stations, will tell you more about that. The difficulty is to hold these boys long enough to complete their education, because they are in demand. Last year I had four or five applications from men who had farms of six or eight hundred acres, asking for our graduates to manage them. One of our graduates has taken charge of an 800-acre farm, bought the live stock, put up the buildings, drained the farm, and is putting it on a revenue-producing basis. There is a steady demand for that sort of young men. A large proportion of our graduates are engaged in the development of agriculture in some way.

Doctor SCOTT. The president of the university before me educated a son in the college of agriculture, but he became a physician.

Senator FRAZIER. The real purpose of this bill, as I understand you, is not to extend the experimental work of the colleges?

Doctor THOMPSON. No; but to increase the teaching.

Senator FRAZIER. On the general lines of agricultural instruction?

Doctor THOMPSON. Yes. It will be in the direction indicated in the act of 1890. It is simply for a reenforcement and development of the work in which we are already engaged. There can not be anything said against this which could not be said against the original proposition. I think the country will unquestionably desire to have this done in time. The question is whether you will do it this year or next year or some other time. There is no doubt that you will do it. The only question is whether you will do it now.

Doctor WHITE. There is no inhibition or prohibition in this act, if any institution should desire to appropriate any of this money to what may be called experimental work. We could not use it to pay the expenses of institutions established under the act of 1887, but the act of 1862 is broad enough to permit experimental work in connection with education.

Doctor THOMPSON. Let me say this, that every one of these colleges of agriculture, in connection with teaching, is doing a certain amount of experimentation. For example, we are experimenting in the production of corn. The last legislature bought 90 acres additional land for us. We are doing that for instructional purposes. It is not research work, but we are experimenting.

We are also experimenting in the breeding of cattle and horses and in their feeding, to show our students what can be done. The experiment station simply works and finds out, and puts the result of its investigation into a bulletin, by way of adding something to the total of human knowledge; but we are trying to show these boys how to do these things, how to improve the breeds of live stock, how to improve the varieties of corn and wheat, how to develop the efficiency of the soil. We have to do some experimental work at all these colleges in order to instruct them. I thank you for suggesting that. That is the pedagogic form which all instruction must take. If you confine agricultural instruction to the reading of books and classroom experience without anything else, you will make a total failure. The last legislature gave us \$10,000 for live stock alone for purposes

of demonstration, and we already had \$10,000 previous to that, and they gave \$80,000 with which to build barns for the housing of this stock, because they believe that the great cattle and horse industry of Ohio is so fundamentally important that they can not do a better thing than to develop it. So our barns and fields are used as laboratories in which to demonstrate our instruction.

Doctor WHITE. While we are on that point, the fourth paragraph of section 5 of the original act of July 2, 1862, provides that:

An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their cost and results, and such other matters, including State industrial and economical statistics, as may be supposed useful.

So there is ample authority to appropriate any part of this money for what would be called experimental work.

STATEMENT OF HON. W. M. HAYS, ASSISTANT SECRETARY OF AGRICULTURE.

Mr. HAYS. Mr. Chairman and gentlemen, I am very sorry indeed that Secretary Wilson could not have come this morning. You may know that he is having many hearings on the administration of the pure-food bill. He could not get away this morning. He said that I might say he is in favor of these appropriations for agricultural education.

Senator FRAZIER. He is generally in favor of anything that is beneficial to agriculture.

Mr. HAYS. Yes; he is certainly in favor of all these movements to help the farmer. As he often puts it, he is in favor of helping the man who works with his coat off.

Mr. Chairman, the large influence that it seems to me Congress can exert through this appropriation is to recognize this education started by Congress in 1862, at a time when it has become successful in these colleges and is reaching the people through many other agencies. And it is not confined to agricultural education alone.

There are two other lines of education that have been created and made possible in our industrial and home life in this country by the act of 1862. One is education in the mechanic arts. That was originally and largely developed, though not exclusively developed, in these institutions. Education in the mechanic arts was earlier successful than was agricultural education, because the body of knowledge in that line was more easily reduced to pedagogic form. It was more easily put into a form that made a strong course of study in competition with the older lines of education, and led directly to salaried positions for students. So that students naturally flocked to courses that would lead them directly into remunerative positions. Agriculture became successful more slowly. This has grown up very largely through the work of the experiment stations, which also were created by Congressional action.

But this education in mechanic arts, begun in these colleges, has now permeated the secondary school system of our cities and has gone into a great number of other colleges; and the great and increasing development of this country in transportation and manufacturing and city building has been largely forwarded by the men graduated in the mechanic-arts courses of these colleges. And these graduates

have gone also into the city high schools, and, as many of you know, have there made successful secondary education in mechanic arts. In the Mechanic Arts High School in St. Paul I know that the students coming from that course of study have had a great influence in the mechanic industries and the transportation industries of our State. Some of the great manufacturing concerns of the State are in touch with these city high schools to get there the men who show instincts and ability for work along these lines, and they take them into their manufacturing and transportation establishments and find that they go forward much more rapidly than men with the practical training but without the school training. So I think it may be said that this movement, started by Congress in 1862, is leading to the broadening of secondary education in the mechanic arts.

Then going further, it is having its influence in what are ordinarily called "manual-training courses of study" in the primary schools.

The third line that has come forward under this act of 1862 is the education in home economics. This work for our home makers was first started in the agricultural colleges. I happen to have been a student in one of the colleges where the first work was started, in Iowa, in the early eighties, and I have been so situated that I have followed this work throughout the various State agricultural colleges, as it has gone from one to another, and from them into such institutions as the Drexel Institute, in Philadelphia; the Pratt Institute, in New York; the Armour Institute, in Chicago, and from there into the city high schools, and finally into the primary schools and into a great many nonpublic schools, schools financed with funds other than public funds.

I have had a somewhat peculiar experience, calculated to make me enthusiastic on the agricultural side of this proposition. Having attended the Iowa Agricultural College, which has made very rapid growth and become a large institution, I went to the University of Minnesota, where agricultural education had not been successful; but just shortly before I became a teacher there a secondary school was started within the university, an agricultural high school, which now has about 600 students, and a second agricultural high school has now been started in a remote part of that State. Similar schools have been started in a number of other States in connection with the agricultural colleges. Alabama finally led out with such a school in each one of its Congressional districts. It has not financed them very well as yet, but the seed is there, although the first growth may be slow. I can understand that President White is now interested in a peculiar way, because recently that State started one of these schools in each of its Congressional districts, and President White is going to be asked to produce teachers for those schools, eleven of them in his State.

I can speak with some emphasis on the question that has been mentioned—of the need of men to do this practical teaching in all the schools of this class. In the Department of Agriculture, in some of these new lines which are coming up, there is always trouble to find trained men. These agricultural high schools, of which there are 30 or 40 now, have got to have men of the right kind, not simply recent graduates, but men who have added to collegiate training experience in teaching, and also practical experience in agriculture. We need

seasoned men to teach these practical subjects. It is much more necessary in these lines than in teaching ordinary academic studies, such as mathematics, history, and so forth. In order to teach agriculture in the proper way, especially if a man goes into a new State, he must spend some years to get in touch with all the practical features under the conditions of agriculture in that State. Now, Mr. Chairman, the people of this country, as it looks to me, were led to take hold of this industrial education in all three of these lines and carry it to the people.

The expense is going to be large. The expense to the States, to the cities, and to the communities is going to be large. This class of instruction is more expensive than the general lines of instruction, because, while in those lines they use only chairs and blackboards and text-books, with some apparatus in scientific courses, this line need those things, and in addition it requires an industrial plant at these colleges. One reason why the agricultural courses in our agricultural colleges were more slow in developing than the courses in the mechanic arts was that these institutions were mostly small and had comparatively small funds, in proportion to the number of students, and they naturally spent the funds in the lines that would accommodate the most students, and did not have that surplus of funds with which to develop a large equipment of live stock and machinery and crops and other things, both in laboratories and out on the farm, which are necessary to make a thoroughly instructive and also inspirational course of study. The greatest thing Congress did in the act of 1862 was to give instruction, and with it inspiration, in American agriculture and American country life.

In these agricultural high schools that the States are supporting there is not only agricultural instruction and the preparation of young men to go back on the farms and make model farms at their own expense, and also to go into the rural schools and there teach agriculture to a very much larger number than can be reached in these high schools, reaching practically all of the boys and girls on the farm, but there is also in these colleges preparation of young women to go and carry home economies to these secondary schools and primary schools. Once we have a body of knowledge that all the people should know and an inspiration that all the people should have for a high type of country life, the real problem is in the rural school, because it is more expensive than common education. New forms of schools must be worked out. We do not know yet how they may reach it, but that is a great question of this country, and in the South and West, where the land is not so high priced, where taxes can not be raised so well, where the land will not yield so much revenue per acre, if I may put it that way, the problem is going to be a very large and difficult one. But I believe it is going to be met, and I believe that Congress, taking this matter up at this time or at some early time, will help to inspire the people of this country to carry forward the great movement that Senator Morrill and Congress started in 1862.

Senator PERKINS. Not interrupting you, Mr. Secretary, I think you, as well as the distinguished educators who have preceded you, have demonstrated the wisdom of Congress in making the appropriations it did to the respective States and establishing this chair of

agriculture in the universities and agricultural colleges of the States. The question now that comes to us is this, and if you will kindly address yourself to that point I think it will relieve my mind somewhat: Congress having made these appropriations and established these schools, the States cooperating, if you come now and ask for further Government aid, are you not depriving the States of the privilege of taxing themselves for the further developing of these agricultural schools, and also putting a quietus, if I may so express it, upon philanthropic citizens who would like to endow those chairs with donations? In other words, has not Congress done all it ought to do for these schools in establishing them and helping people to help themselves? That is the only point in my mind.

Mr. HAYS. I thank you for the question, Mr. Senator. The general educational board, as some of these southern gentlemen know, organized with an office in New York, has made a study of the southern educational question in connection with the Southern Educational Association. They have come to the conclusion that the great problem in education in the South is the education of the farm boy and farm girl. The South is mainly agricultural. They see the large cost, and I feel sure that they are going to call the attention shortly of all who have means to give to the solution of this very large problem, so large, Mr. Chairman, that individuals could not wholly meet it in this generation. It must be met also with public appropriations, and all of those appropriations that we can get from all sources will not be sufficient to take care of this question short of a generation, increase them rapidly as we may. I speak advisedly on this question, because I have been looking up the statistics from various standpoints on this line.

The Department of Agriculture had a man make a map of one State, with lines much like contour lines on a map, showing the values of the land in that State. He also studied the rural schools as he went along and their sources of revenue, and I assure you, gentlemen, the difficulty of caring for the less expensive general education, let alone this expensive agricultural education in each of these districts, makes a very large and difficult problem. Now, as to the source of the money and the relative responsibility, if I may put it that way, between the General Government and the States. The General Government has the easy way of raising money by indirect taxation, and it raises somewhere from six and a half to eight hundred million dollars and spends it annually through Congress. All of the States through their legislatures spend something like one-fourth of that. I understand that a recent bulletin of the Census Bureau has given the exact figures on this line, and I will try to answer your question more explicitly if I may be allowed to do so.

The States are carrying this great educational expense—the good-roads burden and a lot of other burdens—and yet have not the means of getting large funds through taxes, because they have the more direct forms of taxation, through which the response comes more slowly. And I think, Mr. Chairman, that it is not only wise in a general way, but that it is good general public policy for the General Government to help build up these lines that stimulate and encourage, as Doctor Thompson has so well said, the industrial people of this country. That is all I care to say.

Doctor WHITE. Mr. Chairman, I am sure we are indebted to you gentlemen. We should like to have a word from Doctor True, if you have time enough to hear him.

The CHAIRMAN. We have eight minutes more.

Doctor WILEY. Before Doctor True proceeds, may I say that perhaps the Senator who had in mind the sum of \$50,000 annually as the amount carried by this bill has not, perhaps, noticed that that of course includes the \$25,000 annually now appropriated under the act of 1890. In other words, this bill calls for an ultimate increase of \$25,000 a year for each institution. It calls for an appropriation for the current fiscal year of \$240,000 in bulk and an additional amount of \$240,000 for each of four years following, when the total appropriation made under this bill for the forty-eight States and Territories will be \$1,200,000. Unless a careful examination is made of the bill it might give the impression that there was an increase of \$50,000 for each State, which is not the fact.

Senator PERKINS. I am glad you called my attention to that.

Doctor WHITE. The other point I want to make is in reference to the conditions in the South, on the question asked by Senator Perkins a moment ago. I think there need be no apprehension that the States will fail to do all they can to advance and to support this kind of education. It may be interesting to you gentlemen to know that recently in my State we have not only established an agricultural high school in each Congressional district, 11 in all, supported out of the State treasury to a limited extent, sixty or seventy thousand dollars, but the people were called upon to respond to the appropriations for the establishment of these schools, their buildings and lands, and have contributed more than a million dollars in one year in Georgia to the establishment of these institutions. That shows the interest of the people at large in this kind of education. They not only did that, but they appropriated \$100,000 at the same legislature for the construction of a building to be devoted to the school of agriculture in the college of agriculture at the university. I know what the condition is in a great many of the States, and I think they may be relied upon to do all that they can do, and I do not think this supplemental grant here will in any way act as a damper upon the interests of the States in this work.

Senator PERKINS. This is a high encomium to the enterprise of the people of Georgia, I am sure.

Doctor WHITE. I think that might be equalled in other States. In the South we have not had much, and therefore when we do a little it looms large.

Senator PERKINS. I think that is, indeed, a great work.

Doctor WHITE. Another thing, if I may be permitted, in connection with the South. We have a terrific burden to bear. When this money shall come to us, only about one-half of it goes to these schools. The other half goes to the support of negro institutions. The Southern States are practically called upon to support two systems of education. Wisely or unwisely, the fact remains that we have it to do, and therefore the burden is large upon those States for this kind of education, and by supplementing it from the Federal Treasury we do not see that our interests will be damaged. Personally I do not believe much in asking other people to do the work that you

can do yourself. I think the States ought to provide for this sort of education and all kinds of education, and I think I am on record on that point. I think it is bad policy not to make the people self-reliant—to do for themselves—and if I thought this would affect our people in a detrimental way—

That is what I am asking about in my question.

Doctor WHITE. I am quite at one with you, and if I thought for a moment that this thing would at all dampen the ardor and interest of our people in acting for themselves and their own education I would not advocate it at all. I can not see that it will. The amount is small, to begin with—\$25,000 annually to an institution that ought to have, as many similar institutions do have, millions. It is a very small amount, and yet it is held up to the people, and it incites them to greater effort.

The thing which led to the appropriation of \$100,000 in Georgia, which I spoke of, was a gift on the part of an individual of some land to the institution. Instead of pauperizing our people it incited them to add to this gift, and they appropriated the money to the building on the land.

**STATEMENT OF DR. A. C. TRUE, DIRECTOR OF THE OFFICE OF
EXPERIMENT STATIONS, DEPARTMENT OF AGRICULTURE.**

Doctor TRUE. Mr. Chairman, I am here this morning, at the request of the honorable Secretary of Agriculture, to give this committee any information in the possession of the Department of Agriculture relating to these colleges. We receive there the reports of these colleges annually, which are transmitted in accordance with law to the Secretary of Agriculture. On the basis of those we compile information regarding this kind of education for the benefit of the farmers and other people in the country, so that we have a considerable amount of such information, which we shall be glad to place at the disposal of the committee.

This matter which you have before you is a large proposition. It is not a question of a few chairs and a few institutions, but of hundreds of professors and teachers and thousands of students.

It has already been explained that this legislation which is proposed would further endow special courses in agriculture, in the mechanic arts, and in domestic science. Now, mechanic arts in itself is a very broad subject and is broadening every day. The different lines of engineering work and such matters as the establishment of textile schools, which have been established by these colleges especially in a few of the Southern States, are only a few of the subjects involved. Then the subject of domestic science is a new subject that has come into many of these colleges in recent years.

As regards the subject of agriculture, that is developing with the great growth of scientific and practical information which the experiment stations are gaining, so that the largest of our agricultural colleges are employing, if I remember correctly, from 25 to 30 different instructors to teach the various branches of agriculture. And yet in some lines in this country our instruction in agriculture is, I should say, very weak compared with that which is given in foreign institutions. That is particularly true in the departments of rural engineering, rural economics, and sociology.

Rural engineering has already been referred to by President

Thompson, and it is true that in a few of our largest institutions some attention is being given to that subject, but in most of these colleges very inadequate instruction is given in it as yet. That includes, besides the subjects spoken of by President Thompson, the great subject of irrigation, which in California and the other Western States is a subject of great interest to the people. Now, California has in its university a department of irrigation, and there may be one or two other such departments in colleges in the irrigated region, but most of the institutions there are teaching about irrigation only incidentally, and the subject is not thoroughly developed pedagogically.

The whole subject of rural economics and sociology has scarcely been developed at all in this country. It has only been touched upon in a fragmentary way by our great Department of Agriculture, and we have not yet gathered together the material out of which to construct courses of instruction in that subject. That is one great branch of agricultural instruction which needs to be developed in our agricultural colleges. So that there is plenty of work for the institutions to do yet, which they are not doing, and in that way, certainly, they can very well use any additional funds which may be given either by the National Government or by the States.

Touching on the subject of State aid to these institutions, I think a study of the statistics which we have gathered will show that the giving of State aid to them has much more than kept pace with the giving of additional Federal aid. In the case of agricultural experiment stations, which until this present year have received, under the Hatch Act, \$15,000 each for agricultural experimenting, the amount of money given by the States gradually rose with the development of the experiment-station work, until last year the stations received from sources within the States more money than the Federal Government was giving them.

I feel sure that the additional aid which the stations are now receiving will be responded to liberally by the State legislatures which are meeting this winter, so that the stations will be much better off in every way. And what is true of the stations is also true of the colleges of agriculture. These institutions are also beginning to receive private gifts, and I think the tide is going to turn more heavily in that direction. Until recently it seems to have been believed among private benefactors of our educational institutions that the Government and the State ought to fully equip and maintain these colleges, but in recent years there seems to be a change in that regard; and while it has been manifested only in a comparatively few instances so far, yet those instances are multiplying. Mr. Carnegie, for example, for quite a time would not give anything to these institutions, on the ground that they were public institutions.

Senator PERKINS. He has placed at the disposal of Luther Burbank, whom you know by reputation, \$5,000 a year for ten years.

Doctor TRUE. Yes; and he has given, for example, the State college of Pennsylvania a very fine library, and there are other examples of that kind. So I do not think that anything that you may do here in the way of giving increased Federal aid to these institutions will result in a decrease of private gifts. I think, rather, that as these institutions grow in stability and usefulness to our people generally they will get more private benefactions.

Now, as regards the work which these institutions have in hand, which make it immediately pressing that they should have increased

funds from some source, I may mention these points very briefly: With the increase of the Department of Agriculture and the experiment stations, and the great interest that has been awakened in the country in the scientific study of agricultural problems, there has grown up a very large demand for men trained to be agricultural investigators, and thus far these colleges are not able to meet that demand. At this very time that is important, partly because of the increased funds which the States are receiving from the Federal Government, as well as the increased appropriations which Congress has given to the Department of Agriculture; so that we who have to do especially with this experimental work feel that the colleges ought to be put in a position to do everything they can to prepare an additional number of thoroughly trained men to do this fundamental work of agricultural research.

Then, agricultural education, and not only that, but industrial education in general, is spreading very widely in this country, and there is a constant demand for trained teachers along these lines in all sorts of schools; and I am glad to see that this bill provides especially for the use of some of this money for the preparation of teachers. These agricultural colleges are now establishing what may be called chairs of agricultural pedagogy. That has been done recently in two or three of these institutions, feeling that they ought to do more to train young men and young women to go out into the rural communities and teach these subjects which are now coming to form a part of education.

Then as regards the more practical work that these colleges are doing in agricultural lines, it may be said that they are getting a much larger number of young men who are actively interested in practical farming. There was a time when that was not so, and especially in some sections of our country where agriculture was relatively depressed; but with the increase of our agricultural prosperity, more attention is being given by a brighter class of young men to the desirability of agriculture as a life pursuit; so that whether they have estates which are likely to come into their possession soon, or whether they are poor young men seeking careers, they are more inclined now than ever before to take the agricultural courses in our colleges, with the result that not only is the number of students increasing in these colleges, but the character of the students taking the agricultural courses is decidedly improving. Along that line they are doing a more important work than ever before, and it is absolutely true that they can not meet the demands made upon them to supply trained men to take charge of agricultural operations.

I think in most of our States the presidents of the colleges and the directors of the experiment stations will say that if they only had the men trained they could fill many more positions as farm superintendents and to take charge of larger agricultural enterprises than it is possible for them to do under present circumstances. So that in all these respects this movement for agricultural education, as well as for other forms of industrial education, is growing with great rapidity in this country, and the funds which may be given by the Federal Government for this purpose, I am sure, can be put to better use in the years to come than they ever have been in the past.

Thereupon (at 12 o'clock noon) the committee adjourned.

INDEX.

	Page
Adamson, Hon. William C. (M. C.), of Georgia, remarks on agricultural educa- tion	33
Agricultural colleges:	
Hill, Hon. William C., remarks on	29
Critchfield, N. B., remarks on	37
White, Dr. H. C., remarks on	58
Thompson, Dr. W. A., remarks on	72
Adamson, Hon. William C., remarks on	33
Hays, Hon. William, remarks on	79
True, Dr. A. C., remarks on	84
Appalachian watersheds	53
Breeding and feeding, animal	14
Forest reserve loan appropriation	26
Forest Service, remarks on, by Gifford Pinchot	46
Grain investigations	19, 20
Hays, Hon. William, Assistant Secretary of Agriculture, remarks on agricul- tural colleges	79
Hill, Samuel, remarks on "good roads"	29
Pinchot, Gifford, remarks on improvement of forest reserves	46
Salaries of chief clerks	11
Seeds, distribution of, free	21
Solicitor, salary of	3, 4
Thompson, Dr. W. O., remarks on agricultural colleges	72
Weather Bureau, salary of chief of	6
White, Dr. H. C., remarks on agricultural colleges	58
Wiley, Dr. H. W., remarks on pure food investigation	54

LEASING OF FOREST RESERVES.

COMMITTEE ON AGRICULTURE AND FORESTRY,
UNITED STATES SENATE,
Washington, D. C., Monday, February 11, 1907.

The committee met at 2 o'clock p. m.

Present: Senators Proctor (chairman), Hansbrough, Dolliver, Burnham, Long, Latimer, and Frazier, of the committee.

Present, also, Senator Carter and Senator-elect Dixon, of Montana; Hon. James Wilson, Secretary of Agriculture; Gifford Pinchot, esq., Chief Forester of the Department of Agriculture; Overton W. Price, esq., Associate Forester, Department of Agriculture; Dr. B. T. Galloway, Chief of the Bureau of Plant Industry, Department of Agriculture.

Present, also, Messrs. A. E. De Ricles, of Denver, Colo.; J. M. Boardman, of Helena, Mont.; T. W. Gray, of Gunnison, Colo.; C. E. Ayer, of Dixon, Wyo.; C. W. Martin, of Carlsbad, N. Mex.; Robert Taylor, of Casper, Wyo.; E. J. Bell, of Albany County, Wyo.; W. H. McKittrick, of Arizona; T. J. Walsh, of Helena, Mont.; J. M. Wilson, of Wyoming; H. A. Jastro, of Bakersfield, Cal.; F. M. Stewart, of Buffalo Gap, S. Dak.; Martin Garm, of Sugar, Idaho; Will C. Barnes, of Las Vegas, N. Mex., and a number of others.

The committee thereupon resumed the consideration of the agricultural appropriation bill.

The CHAIRMAN. Gentlemen, we have met to-day for the purpose of hearing the sheep and cattle and forest-reserve men. Please bring forward your first speaker. We want to make the hearing as brief as possible. We had the bill all ready to report Thursday. We have waited since that time for you, and the pressure of business is great, so we wish to get through with the matter so as to submit our report to-night, if possible; but we want to give you a fair hearing. I do not know the members of your committees, but we are ready to hear the first speaker.

Dr. J. M. WILSON. Mr. Chairman, we have arranged for a discussion of two sides of this matter, and we would like to ask the committee to give us so much time. The parties in favor of the leasing system are to speak first, and as I am on the other side, I do not see any of them here yet. I do not know, in fact, who has been selected to represent the other side.

Mr. A. E. DE RICQLES. Senator, there are three committees here. One is the committee that has been appointed by the President, at the suggestion of the stockmen, to meet with the Public Lands Committee. The second committee is the committee of sheep growers, who have come here to present their side of this argument. The

22094

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third committee is the committee of the American National Live Stock Association, representing eight States. There is one gentleman here from each State. We want to be just as brief as possible in this matter.

The CHAIRMAN. Do you make the first statement?

Mr. DE RICQLES. I am the chairman of the grazing committee of the American National Live Stock Association.

The CHAIRMAN. And you wish to make the first statement?

Mr. DE RICQLES. I am making the first statement.

**STATEMENT OF A. E. DE RICQLES, ESQ., GENERAL MANAGER OF
THE AMERICAN LIVE STOCK AND LOAN COMPANY, OF DEN-
VER, COLO.**

Mr. DE RICQLES. I beg to present here, sir, a statement showing who the members of the American National Live Stock Association are. It is made up of 33 associations, consisting of about 7,000 stock growers, who are in the main small stock growers. This association, at its last convention in Denver, passed a resolution in regard to these grazing matters, of which I beg leave to present a copy and leave it on file as representing the sentiment of the association.

May I read this resolution?

The CHAIRMAN. Certainly.

Mr. DE RICQLES (reading):

Resolution unanimously adopted at the tenth annual convention of the American National Live Stock Association, held at Denver, Colo., January 23, 1907.

Be it resolved, That the American National Live Stock Association in convention assembled does heartily indorse and approve the plan of the National Administration to classify and put the grazing and unoccupied public land under the control of the Department of Agriculture for grazing purposes, under some system of lease or grazing permit, protecting the interests of all concerned and working an injury to none: And be it further

Resolved by this convention, That we respectfully request the President of the United States to appoint a committee of practical stockmen from the States and Territories where the land is situated to confer with the Department of Agriculture and the Public Lands Commission as to the most equitable and effective law to be passed on this subject.

A true copy.

T. W. TOMLINSON,
Secretary American National Live Stock Association.

The following is the list of members of the association referred to by Mr. De Ricqles:

List of associations, members of American National Live Stock Association.

[Name of association and one principal officer.]

American Berkshire Association, Frank S. Springee, secretary, Springfield, Ill.
American Hereford Cattle Breeders' Association, C. R. Thomas, secretary, 221 West Twelfth street, Kansas City, Mo.
American Short Horn Breeders' Association, John W. Graves, secretary, Union Stock Yards, Chicago, Ill.
Arizona Cattle Growers' Association, G. L. Coffee, secretary, Globe, Ariz.
Arizona Wool Growers' Association, E. S. Gasney, president, Flagstaff, Ariz.
Bijou-Muddy Cattle Association, R. M. Schaefer, secretary, Deuel, Colo.
Cattle Growers' Association of New Mexico, W. C. Barnes, secretary, Las Vegas, N. Mex.
Cattle Sanitary Board of New Mexico, W. C. Barnes, secretary, Las Vegas, N. Mex.

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Cattle Raisers' Association of Texas, ———, secretary, Fort Worth, Tex.
 Cattle and Horse Protective Association, District No. 9, H. M. Smith, treasurer, Fort Lupton, Colo.
 Cattle and Horse Growers' Association of Colorado, F. B. Johnson, secretary, Denver, Colo.
 Corn Belt Meat Producers' Association, H. C. Wallace, secretary, Des Moines, Iowa.
 Converse County Cattle Growers' Association, Douglas, Wyo.
 Delta County Live Stock Association, J. H. Halley, president, Delta, Colo.
 Fremont County Stock Association, of Wyoming.
 Gunnison County Stock Growers' Association, L. H. Easterly, secretary, Gunnison, Colo.
 Inland Registered Breeders' Association, W. A. Linklaterr, secretary, Pullman, Wash.
 Kansas State Live Stock Association, George Plum, secretary, Emporia, Kans.
 Kern County Cattle Growers' Association, F. G. Munger, secretary, Bakersfield, Cal.
 Kern County Wool Growers' Association, L. B. Olsece, secretary, Bakersfield, Cal.
 Montana Stock Growers' Association, W. G. Greibb, secretary, Helena, Mont.
 Middle Park Live Stock Association of Wyoming, Laramie, Wyo.
 Nebraska Stock Growers' Association, E. M. Searle, secretary, Lincoln, Nebr.
 North Park Cattle Growers' Association, Jas. McFarlane, president, Hebron, Colo.
 Park County Cattle Growers' Association, Samuel Hartsel, secretary, Hartsel, Colo.
 Platte Valley Cattle Association of Colorado, B. J. Deffey, president, Collbran, Colo.
 Pikes Peak Cattle and Horse Growers' Association, R. S. Husted, secretary, Cripple Creek, Colo.
 Snake River Cattle Growers' Association of Colorado, C. E. Ayer, president, Dixon, Wyo.
 Sheep Sanitary Board of New Mexico, Harry F. Lee, secretary, Albuquerque, N. Mex.
 Southern Utah and Northern Arizona Cattle Men's Union, D. H. Morris, secretary, St. George, Utah.
 Washington Live Stock Association, F. M. Rothrock, secretary, Spokane, Wash.
 Western Slope Wool Growers' Association, W. P. Ferguson, secretary, Montrose, Colo.
 Western South Dakota Stock Growers' Association, F. M. Stewart, secretary, Buffalo Gap, S. Dak.

Mr. DE RICQLES. Now, Mr. Chairman, I wish also to file with you another little pamphlet showing the resolutions passed by the Arizona Cattle Growers' Association in regard to this same matter. It is very brief.

(The resolution referred to is as follows:)

Resolutions adopted at the meeting of the Arizona Cattle Growers' Association, held in Phoenix, Ariz., November 16, 1906.

As members of the Arizona Cattle Growers' Association, we favor an equitable, just, and proper Government supervision of the open range—a supervision that, when set in operation by an act of Congress and proclamation of the President, will be automatic and perpetual—opening and closing at set periods of its own accord, until all of the range country be exhausted by homestead entry; and if leasing permits on the range are to be granted, favor the issuance of the same for at least ten-year periods on a per capita basis.

It is the sense of this association that for the modification in any sense of any district when once established, as to boundaries, area, or the issuance of an order to vacate the same, that the initiative for such change shall remain always with those to be affected.

We heartily concur with the National Live Stock Association in its resolution that the range rights of present users of the grazing area, as determined by priority of occupancy and present use, shall be carefully safeguarded, and we most earnestly urge that in the law for range supervision Congress shall make it the duty of range reserve officials to enforce the live stock laws of the State or Territory in which the reserves are established, so long as such laws do not conflict with the Federal laws.

We believe that in fairness between States and Territories Arizona should be given the same rights that are enjoyed by New Mexico, viz, the privilege of selecting lieu sections for the school sections that are on forest reserves, be they surveyed or not.

We extend to the United States Chief Forester, Gifford Pinchot, our hearty approval of the practical manner in which he is handling the question of grazing on the forest reserves of Arizona.

In view of the unjust and thoroughly unfair freight rates on the transportation of cattle now existing within this Territory, which, we believe, are a great detriment to the best development of the cattle industry, we urge the appointment, by the Arizona Cattle Growers' Association, of a committee of five for the purpose of bringing before the Interstate Commerce Commission, in the proper manner, the necessity of an early reduction and adjustment of the discriminating freight rates on cattle now existing within this Territory.

We unanimously indorse the action taken at Kansas City, October 9, 1906, by the conference committee of the American National Live Stock Association, relative to the extension of foreign markets for our surplus live stock and meat products.

As funds will be necessary for the protection of the interests of the cattle growers of the Territory, that the Cattle Growers' Association be empowered to assess its members for necessary funds, which assessment shall be levied in proportion to the live stock assessed in the respective counties in such amounts as assessed in each county where said stock is located.

It is the sense of this meeting that the stockmen on each forest reserve shall form a local association and appoint the necessary committee to take advantage of Regulation No. 69 of the Forest Service, which states that:

"Whenever any live stock association whose membership includes a majority of the owners of any class of live stock using a forest reserve or portion thereof shall appoint a committee for such purpose, an agreement on part of which committee shall be binding upon the association, such committee, upon application to the Forester, may be recognized as an advisory board for the association, and shall be entitled to receive notice of proposed action and have an opportunity to be heard by the local forest office in reference to increase or decrease in the number of stock to be allowed for any year, the division of the range between different classes of stock, or their owners, or the adoption of special rules to meet local conditions."

We recommend that the president of this association appoint representatives of this association to confer with forest reserve supervisors in order that cattle men may receive equal rights with sheep men on the reserves.

It is the request of the Arizona Cattle Growers' Association that the committee on legislation use their best endeavors in the passage of a law (in the next session of our legislature) prohibiting the holding of roping contests in the Territory of Arizona.

We indorse the action of the live stock sanitary board and the Territorial veterinarian as to the temporary intention of the slaughter fence in Cochise County as a safeguard against infection from adjoining Sonora ranges.

The committee on legislation and the live stock sanitary board be, and they are hereby, requested to bring to the attention of the United States Department of Agriculture the desirability of testing the value of Burbank's spineless cactus as a cattle forage on Arizona ranges.

The Arizona Cattle Growers' Association has had in the past reason to appreciate the valuable services rendered it by Hon. Joseph H. Kibbey, then the legal adviser of the association, in ridding the Territory of cattle rustlers and in assisting this association to a sound and permanent standing in the Territory, and it has been with pleasure and gratification that this association has noticed the manly and honest conduct of Governor Kibbey since his appointment as governor of Arizona in seeing that the laws of the country are enforced equitably to all the people of the Territory, irrespective of classes; and especially does this association appreciate and commend the action of the governor in the enforcement of the tax laws of the Territory, so that the burden of taxation may fall equally upon the large as well as upon the small taxpayer of the Territory; and we hereby extend to Governor Kibbey our earnest support in the policy which he has and is pursuing as governor of Arizona.

We request the Arizona live stock sanitary board to appoint the various supervisors of forest reserves now located within the Territory as live stock sanitary inspectors, that the cattle growers of this Territory may obtain the best possible cooperation of the very effective organization of the Forestry Bureau.

We indorse the practical and efficient administration of the Territorial live stock sanitary board and the energetic and thorough work of the Territorial veterinarian.

The Arizona Cattle Growers' Association fully appreciates the good work done by the Arizona ranger force within our Territory. Crime is less frequent within the Territory than ever before, life and property are now almost absolutely secure, and the professional criminals have been driven from our Territory, and we are now enjoying a greater freedom from crime than any State in the Union, and we petition the next session of our legislature and our governor not to reduce the ranger force at the present time.

We heartily approve the objects of the Cooperative Live Stock Commission Company, whose operation we believe is of unquestioned benefit to cattle growers.

Here is one by the South Dakota association:

RAPID CITY, S. DAK., December 28, 1906.

Be it resolved by the executive committee of the Western South Dakota Stock Growers Association, in regular meeting assembled at Rapid City, S. Dak., this 28th day of December, 1906, That we heartily favor the enactment by the Congress of the United States of such laws as will enable the Government, through the Department of Agriculture and the proper officers thereof, to lease all the unoccupied public lands of the United States for grazing purposes, such leases to be granted only to actual bona fide residents of the State in which such lands may be so located, and under such restrictions and qualifications that actual settlers and small owners may have ample protection and proper privileges, the said leasing to be under rules and regulations promulgated by the Department of Agriculture. We firmly believe that the enactment of such a law would be to the mutual advantage and benefit of both the Government and the settlers, resulting in revenues to the Government and rendering legal the use of the public ranges for grazing purposes by the settlers of the State where such lands are located.

Be it further resolved, That it is the sense of this association that we respectfully ask the assistance of our Representatives in Congress to the end that such a law may be passed.

Be it further resolved, That the Secretary of this association is hereby directed to forward each Member of Congress from South Dakota a copy of this resolution.

The CHAIRMAN. If these are perfectly identical, is there any occasion to print them all in the record, or can you merely say that they are similar resolutions?

Mr. DE RICQLES. They show the sentiment of the country. I do not want to burden the record, but they show that sentiment.

Our committee consists of eight gentlemen, one from each of the different States, and I do not think they will want more than five minutes apiece, simply enough to get up and express to you, if you desire to hear it, the sentiment that they represent.

For myself, I will briefly say that the stock growers of our country look at this question as one that has to do with the settlement of the different States and the development of the country, and with the food supply—that is, the meat that we are going to have to eat in the future, because if the rangers are left in their present condition and abused, it will only be a very short time before we will not produce any more fat live stock.

I will make one more statement, and then I will sit down.

Senator DOLLIVER. Is there any bill pending here that you are in favor of?

Mr. DE RICQLES. We are in favor of the Burkett bill.

Senator LONG. There are two Burkett amendments. Which one do you appear for?

Mr. DE RICQLES. The amendment, I believe, Senator, that carries with it the provision attaching this to the agricultural appropriation bill. That is what we are asking to have done.

Senator LONG. There are two of those amendments, both introduced on the 6th of February.

Mr. DE RICQLES. I think Mr. Pinchot, the Forester, has the amendment there, and he would like to see it pass your committee.

Mr. PINCHOT. It is the short amendment.

Mr. DE RICQLES. The short amendment—yes, sir. If you will allow me, I will make a short statement here which will show what we want, and then I will sit down.

Twenty million cattle in the western country—now, that is a big number—twenty million cattle that will average in weight 1,000 pounds each are worth \$100,000,000 more to the western people and

to the nation than 25,000,000 cattle (that is, 5,000,000 more cattle) that only weigh 800 pounds each. We would prefer to raise 20,000,000 cattle that weigh a thousand pounds rather than 25,000,000 cattle that weigh 800 pounds, or 30,000,000 cattle that weigh 600 pounds. If such a condition is brought about, it will put the production of this meat supply in the hands of the small growers.

Senator LONG. Do I understand that this amendment is in the interest of the small farmer?

Mr. DE RICQLES. Absolutely. The big stock grower, when this bill passes, must practically go out of business. Now, I personally am a large grower of live stock; but we have an interest that is a larger interest to us, namely, the furnishing of money to the small stock growers; and I will give you my word of honor as a gentleman that I have had 200 letters, at least, during the last year from our customers, who are small stockmen, having from 100 to 200 or 300 cattle or sheep, as the case may be, saying, "For God's sake get something to change the condition of the public range. We can not live. These illegal fences have been taken down, or are going to go down. There is no place for us to pasture our cattle. We can not hold them at home, and unless something is done we will have to go out of the live-stock business."

Senator DOLLIVER. How have they been feeding these cattle?

Mr. DE RICQLES. The range has been deteriorating, and they have countenanced pastures which the people really do not own. You see what I mean. I could explain it by saying that these settlements are along the rivers, and the breaks of the river are broken land, worthless for agricultural purposes, but good grazing land; and these men have in the past and up to the present time held these lands on the breaks by fences, although it was land that practically they did not own. Since the forest reserve has been put into effect under the Secretary of Agriculture and Mr. Pinchot and Mr. Potter—the men that have made great friends in the West by their splendid administration of this thing—it has changed the sentiment out there. There is a gentleman sitting over there—Mr. Ayer, from Snake River, Wyoming—who is one of a number of small men who, when this thing started out, was absolutely afraid that it would put him out of business. Now he is the strongest champion of the thing that there is in the country, because he has seen that it has been a success. It has enabled him to keep his cattle at home and have a little grazing land around his homestead and his own farm; and that is what we are here for.

Senator DOLLIVER. You want to extend this forest-reserve scheme to the general public domain?

Mr. DE RICQLES. I want to extend the grazing system to the public lands, organizing districts as it goes along where people want it and where it is necessary, under the Government, and have them pay a small fee for it, and give a man a title to it. That is my desire.

Senator LONG. In what way does this affect the homesteader, the man who wants to make a home on the public domain, under the homestead law?

Mr. DE RICQLES. I think it affects him favorably, because if he comes there he is assured a piece of land to run his cattle on, while at present he is not.

Senator LONG. And he has to pay for that privilege?

Mr. DE RICQLES. Certainly; just like anybody else.

Senator DOLLIVER. Suppose a man wanted to homestead a piece of land that had been set apart under a lease to some cattleman?

Mr. DE RICQLES. As I understand the bill, it provides, or is intended to provide, and we would like to see it provide, that anybody who wishes to settle in there should have the right to settle, under the homestead law or any other law of the United States.

Senator LONG. It has a provision to that effect, and it also has this provision, that it shall not be construed to prevent bona fide settlers or residents from grazing their stock used for domestic purposes on the public lands affected thereby.

Mr. DE RICQLES. Yes, sir; that would simply give him the right to graze his milch cows or work horses on that land without expense.

Senator LONG. Are they to pay for that privilege?

Mr. DE RICQLES. No; there is no fee for that, as I understand it.

Senator LONG. So the word "free" should be inserted there?

Mr. DE RICQLES. I imagine so; yes, sir.

Senator PERKINS. Does that conflict at all with the railroad lands adjoining the forest reservations? As you are aware, they have alternate sections.

Mr. DE RICQLES. I think it would affect the man who owns the railroad land and uses the other land free.

Senator PERKINS. What is that? Will the railroad companies lease the lands? Do they lease them?

Mr. DE RICQLES. I suppose the railroad companies lease these checkerboard lands to people along the railroads who use them for grazing, and they, in a large number of cases, are able to control the public land without any payment.

Senator PERKINS. Yes; that was my impression.

Mr. DE RICQLES. And it will probably reduce the value of the lease of the railroad lands.

Senator PERKINS. And make more valuable the Government land?

Mr. DE RICQLES. Why, certainly. It makes more that you can absolutely control, but it prevents the usage of the land by the holding of one piece without fee.

Senator DOLLIVER. Is there any limitation upon the amount of land which should be included in any one lease?

Mr. DE RICQLES. I believe the idea was to have the law operate in various ways as a permit, perhaps not leasing the land at all, but allowing a man to run his cattle or his sheep on the land by the payment of so much, or leasing it outright. In Nebraska it would be essential to lease the land, probably, while in Arizona they would not want to lease it at all. They would want a permit to run. The difference in the country would bring about the class of legislation or regulation that was most appropriate. It is not so much a matter of legislation as of regulation. This is something you have got to regulate; you can not legislate about all of it.

Senator LONG. This amendment practically turns the thing over to the Department of Agriculture to conduct, under such rules and regulations as the Secretary may provide.

Mr. DE RICQLES. Now, if I may make a little statement about that: The stockmen on my side of the question believe that it would be almost impossible to make a law right at the start that would cover

all the sides of this question, and that by doing this and giving them a year or two years' experience, possibly, in the operation of this matter, they could legislate immediately as the solution of the proposition was presented to the Department.

Senator DOLLIVER. As a matter of fact, the Chief Forester now is renting land and charging so much per head for cattle and sheep to graze upon the forest reservations?

Mr. DE RICQLES. Yes, sir.

Senator DOLLIVER. You propose to apply this to all unoccupied and nonmineral lands, do you not?

Mr. DE RICQLES. After they have created grazing districts, but not to apply it until those districts have been created, which would be largely at the consent of the people who live there.

Senator FRAZIER. You propose to leave it to the Secretary of Agriculture to say as to the amount of land that may be leased to any particular individual, and what he shall pay for it?

Mr. DE RICQLES. Or the number of cattle to be run on it, so as to protect the country—so as to get the most out of it.

Senator PERKINS. There is one of these committees present that is opposed to this system, is there?

Mr. DE RICQLES. Yes, sir.

Senator PERKINS. Then we will hear them.

Mr. DE RICQLES. There are other members of the American national committee from the different States that perhaps could present this matter a great deal better than I could; and if you wish me to I should like to give the names of the committee to the secretary.

The CHAIRMAN. Yes; we shall be very glad to hear them, but we will ask them to avoid repetition. There is no occasion to merely repeat the same testimony over and over.

Please name your next speaker.

Mr. DE RICQLES. The gentleman right beside you, Senator—Colonel Lockhart.

STATEMENT OF COLONEL LOCKHART, OF COLORADO.

Colonel LOCKHART. I will state, gentlemen, that I live in southeastern Colorado. The conditions there are like this: They have been using the open range in that part of Colorado for a great many years, and the people have turned their cattle and sheep out and occupied this Government land until the range has gotten into such a condition that it will not support cattle or sheep with profit to anyone; and a large portion of the citizens of that particular section of the country have gone out of the business. Many of them have sold their cattle out at auction; and a great deal of development is taking place and has been taking place for a few years along the rivers, particularly the Arkansas Valley—for instance, in the section that I live in, where the sugar-beet industry has obtained to a great extent, and where there are a great many sugar-beet factories now in operation. That has brought about a very thick settlement of the country along these irrigated portions of the country; and the public domain having been utilized to such an extent that it has been denuded of grass, these people desire that the Government shall control the public domain leading out into the arid plains from these populated sections of the country, so that each man may be allotted some

portion of the public domain at a reasonable rental for the use of his cattle or his sheep.

Senator DOLLIVER. To be fenced?

Colonel LOCKHART. Yes, sir; to be fenced; or in certain districts where there is a thick population to do as the forest-reserve people do. They permit a fence to be erected upon a certain area, and then each man pays so much a head, where the holdings are very small.

In other portions of our country the conditions are different. There are great mountains and arid plains and valleys where the water is very scarce. Of course there is no settlement out in that section of the country and could be none except by some persons who would use it for grazing alone and not for agriculture. In a case of that kind we expect that some such regulation as is now in force by the forest-reserve people would be put into effect, and there the rental would be by the acre, so that one man would be allotted so much and another man so much, and the entire area of the public domain would be occupied in that way.

Senator LONG. Are homesteaders taking up that part of Colorado at the present time?

Colonel LOCKHART. Yes, sir.

Senator LONG. Quite rapidly, are they not?

Colonel LOCKHART. Quite rapidly; considerably so. That is, the part particularly contiguous to this area that has been developed by irrigation.

Senator DOLLIVER. What effect on the rights of these homesteaders would this have?

Colonel LOCKHART. We expect that if a law is passed, such as the American National Live Stock Association suggests, it would be a great benefit to the small holder. It would aid the settlement of the country.

Senator LONG. In what respect? Would it encourage homesteading?

Colonel LOCKHART. Yes, sir; I think so.

Senator LONG. In what way?

Colonel LOCKHART. For the reason that every man now homesteads out there on the public domain, and he has no assurance that a big cattleman or a big sheep man is not going to drive right up in sight of him and eat up all the grass that is contiguous to the land that he takes up; while if he was allotted 320 or 640 or 2,000 acres he could utilize that for his cattle or his sheep, and he would have a permanent means of gaining a livelihood.

Senator DOLLIVER. That applies to the homesteader that is already there; but suppose the new fellow should come in and find these cattlemen in peaceful possession of an area in which he desired to plant a homestead?

Colonel LOCKHART. It is designed that such a man shall have the privilege of going in anywhere.

Senator DOLLIVER. Would not public opinion there be a little adverse to his homestead rights?

Colonel LOCKHART. Not at all, sir. They are all encouraging the homesteader. The big fellows are trying to get their lands off onto the homesteader, as a matter of fact.

Senator PERKINS. As a matter of fact, is there not an irreconcilable conflict between the cattle men and the sheep men generally?

Colonel LOCKHART. Not in the particular section where I am.

Senator PERKINS. It is generally so, is it not, sir, through Wyoming and Utah and Nevada? I know it is in California.

Colonel LOCKHART. No, sir. There are places in Colorado where they unite and are having no trouble at all about the forest-reserve regulations.

Senator PERKINS. "How pleasant it is for brethren to dwell together in unity," is it not?

Senator LONG. In the past has there not also been an irreconcilable conflict between the homesteader and the big cattle men?

Colonel LOCKHART. I presume there are instances of that kind.

Senator LONG. Especially in eastern Colorado and western Kansas.

Colonel LOCKHART. Yes, sir. I think that there are plenty of times when the big cattle man has turned his stock loose on the range—for example, near Las Animas, Colo., where one outfit brought Tarasas cattle from old Mexico to the extent of 25,000 head and turned them loose without any water. They had no claim on the open range; they simply turned them loose, to the detriment of the small holder everywhere; and this is designed to prevent just that sort of thing.

Senator LONG. There has been some complaint that a homesteader coming into a large pasture that has been inclosed has not been encouraged to the extent that you now state here in order to take a homestead.

Colonel LOCKHART. That is quite true, Senator, at times.

Senator LONG. He has not been welcome, in other words?

Colonel LOCKHART. He has not been welcome.

Senator LONG. This bill is designed to help the homesteader?

Colonel LOCKHART. Yes, sir; we believe so.

STATEMENT OF J. M. BOARDMAN, ESQ., OF HELENA, MONT.

Mr. BOARDMAN. Mr. Chairman and gentlemen, Montana is somewhat divided on this question; but what I think all we men of Montana most earnestly desire is a permanency and a stability to the business and the settlers and residents of Montana and the stock producers of the State.

This is a question that has been up before and under consideration for a good many years, and it has been a question of how to settle it with the greatest good for the greatest number. We have seen and experienced yearly the excursions of the sheep men that have no permanent abiding place. They drift from one county to another, almost from Wyoming to Montana. They drift clear across an entire county; and I and hundreds of other men that have been in the stock business in Montana have seen a sheep herder with nothing but a wagon go up against a little homesteader and home maker that has nothing but 160 acres of land, settled upon a little spring or stream, and the herder would camp in the shade of the man's barn or in the shade of his house and allow his sheep to eat off every spear of grass that was in sight upon this little homesteader's 160 acres. Now, what we most desire is a protection for the men that are trying to make homes, and also a protection to the industry as it now exists in Montana.

Senator FRAZIER. You say he would allow his sheep to eat off the 160 acres?

Mr. BOARDMAN. Yes, sir.

Senator FRAZIER. Do not the laws of that State protect a man in his right to his real estate? Would that not be a trespass upon his property, and be a violation of the law?

Mr. BOARDMAN. Yes; but if he has no title to it—he may be simply a squatter.

Senator FRAZIER. I thought you said he was a homesteader.

Mr. BOARDMAN. He is a homesteader; but I mean before his land is surveyed. We have, unfortunately, many thousands and millions of acres in Montana that are unsurveyed, and a man has nothing but an imaginary corner to define his 160 acres.

Senator DOLLIVER. That man would be left in bad shape when the surveyor came along, too. [Laughter.]

Mr. BOARDMAN. He might; he might find his corners in the wrong place. But we feel in Montana that a privilege of leasing would be more to our advantage and more in accordance with the conditions as they exist there than what might be termed the permit system. We have been up against that also, and I want to tell you, gentlemen, frankly, right here, that every stockman in Montana has been a violator of the law as it appears on the United States statute books in fencing land that does not belong to him. He has not always done it intentionally, but if you want to take the violators of the laws of Montana, take the membership of the Livestock Association, take the taxpayers, the settlers throughout the States—

The CHAIRMAN. That includes yourself? [Laughter.]

Mr. BOARDMAN. Yes, sir; but I have taken the fences down. I was punished for a political offense because I did not agree on a certain question, and I was complained against, and I have had to take my fence down, and I am in that position—my fences are down. But I would like to be so that I could secure by a lease a certain number of acres, whatever might be allowed to us, to run my stock on under fence. I believe that I could get better results out of a less number of stock in an inclosure than I could on the open range.

Senator DOLLIVER. Would it not be better to enable the people to buy these lands in bulk instead of leasing them—opening them to settlement on the basis of giving people enough land if they will pay a reasonable amount for it, or a nominal amount for it?

Mr. BOARDMAN. I think that in many instances, Senator, that would be very good. In others it might not be very practicable, for the simple reason that a poor man can lease at a nominal rental much easier than he could buy the amount of land that he might wish for his business.

Senator FRAZIER. Do you expect a lease at a nominal rental?

Mr. BOARDMAN. Yes, sir; because there are lands there right to-day which, from having been overstocked and overrun for years, are worth only fractional parts of a cent an acre.

Senator FRAZIER. And you want to legalize the taking of these lands practically for nothing, which you say you have heretofore been taking against the law? Is that the position?

Mr. BOARDMAN. Yes; we want to have a legal right—we want to have a legal right to fence in the lands that we might require or think we would require in the interest of the permanency and stability of our business.

The CHAIRMAN. By paying for them?

Mr. BOARDMAN. By paying for them; yes, sir.

Senator FRAZIER. By paying for them a nominal price, he says.

Senator PERKINS. Was it in Montana that Peter French was killed?

Mr. BOARDMAN. No, sir; that was in Oregon.

Senator PERKINS. That was in southern Oregon?

Mr. BOARDMAN. That was in southern Oregon.

Senator PERKINS. His range runs up into Montana, the Doctor Glenn range; does it not?

Mr. BOARDMAN. No, sir.

Senator PERKINS. A range of several hundred thousand acres?

Mr. BOARDMAN. I have been down on Mr. Peter French's range and at his ranch.

Senator DOLLIVER. Is there any other system of identifying these ranges except fencing them—I mean any unwritten code of occupation?

Mr. BOARDMAN. Oh, those things have been defined in a general sort of way sometimes by such plans as the bunching of the range of a certain number of men, but beyond that there has been nothing definite.

Senator DOLLIVER. And has there been heretofore any antagonism between the incoming settler and the occupying claimant of these ranges?

Mr. BOARDMAN. Never in Montana—never. Fortunately for Montana, there has never been any conflict there between the sheep men and the cattlemen. That has occurred in other sections of the range country.

The CHAIRMAN. Senator Frazier speaks of taking these lands at a nominal price. After they have been overfed they are only of nominal value, I suppose.

Mr. BOARDMAN. That is the situation.

The CHAIRMAN. So the rental would have to be a very low one; but according to your idea, by the proper treatment of them, they will improve in quality?

Mr. BOARDMAN. Unquestionably.

The CHAIRMAN. What about the duration of these leases, then? What would you propose? Will the Government have, within a few years, an opportunity to increase the price when the value has increased?

Mr. BOARDMAN. In many instances, Senator, if a man should take up land to-day in Montana, he would have to fence it and allow it to remain idle for a year or two before it would carry any amount of cattle. That is an instance where I say that the land should be rented at a very low rental.

The CHAIRMAN. Has there been any discussion about the length of those leases?

Mr. BOARDMAN. To this extent: That if a man is going to secure any amount of that land where it is in an impoverished condition, and he has to allow it to remain idle for a year or two, he should have time enough—

The CHAIRMAN. To recoup his expense?

Mr. BOARDMAN. To recoup his expense.

The CHAIRMAN. Yes. He has to fence it, too, has he?

Mr. BOARDMAN. He would have to fence it.

The CHAIRMAN. Have you any suggestion to make? What about ten years?

Mr. BOARDMAN. Yes; I was going to remark, further, that of course there is a great deal of the water taken up in Montana; and it is the dry, arid, broken coulees and lands that lie adjacent to these streams and springs that are now occupied by small men that would be used for summer range; and the lessees would necessarily be compelled to construct reservoirs to collect water for the summer use of their stock, which would mean several years of work and considerable outlay in the way of expense.

The CHAIRMAN. But if a homesteader comes on and wants to locate in the center of one of your ranges he must fence his homestead, of course, or it is not of any value to him?

Mr. BOARDMAN. That might in some cases be arranged for in a community arrangement. If there was a large pasture fenced in that was jointly operated by half a dozen men, a man that would come in and take out a homestead could enjoy the privileges of that by paying his proportion of the expense.

Senator PERKINS. What would you call a fair rent, sir, for the land per annum, say, for a lease of ten years?

Mr. BOARDMAN. Why, Senator, that would vary a great deal according to the present condition of the land. The land should all be classified. Some lands would be worth more than others.

Senator PERKINS. The water practically controls the range, does it not?

Mr. BOARDMAN. To a large extent; yes, sir.

The CHAIRMAN. Homesteads would not be taken up for cultivation very much on this territory, I suppose. They would be taken up for stock raising, would they not?

Mr. BOARDMAN. To a large extent they would; although, at the same time, in Montana, as well as in other western States, we are beginning to learn that dry farming can be successfully operated.

The CHAIRMAN. Of course the cultivated lands would have to be fenced?

Mr. BOARDMAN. Yes. There is many a man on the open bench land who at certain seasons can plow a few acres of land and fence it, and keep the stock off, and raise a nice little crop.

Senator LONG. Is there much of what might be termed the water land that has not already been taken up through homesteading?

Mr. BOARDMAN. What is that, Senator?

Senator LONG. Has not much of the water land been already homesteaded in your State?

Mr. BOARDMAN. There is a good deal of that—there is a good deal of it. Yet, at the same time, there is a good deal of land on the benches. We find, too, in Montana that you can get good water out of the bench lands by reservoirs, and a great deal of that is being done in Montana to-day. We are not depending entirely upon the streams to secure water for irrigation purposes, but reservoirs are being constructed in the coulees that drain certain territories to store the water, and they are conducting it to the benches and bottoms below the mouths of the coulees. They are being very successfully operated.

Senator PERKINS. Have you a no-fence law in your State, Mr. Boardman?

Mr. BOARDMAN. A fence law? Yes, sir; we have.

Senator PERKINS. Would not that conflict with leasing the public lands?

Mr. BOARDMAN. Oh, no.

Senator PERKINS. You have to care for your stock, even if there is a no-fence law?

Mr. BOARDMAN. But the trouble of it is now, Senator, that on these open ranges there are no fences excepting perhaps around 160 acres. If a man has a claim of 160 acres in Montana it is a very hard matter for a ranchman on 160 acres with a little bunch of stock to make a living. If he has the right kind of land, he would naturally utilize his 160 acres to provide winter feed.

Senator PERKINS. I so understand it. But you are obliged, under your State law, to protect his ranch, to protect his farm, his location?

Mr. BOARDMAN. By fencing it.

Senator PERKINS. Therefore he can not put in a crop and have it subject to the ravages of these cattle roaming over it at will?

Mr. BOARDMAN. No, sir; he has got to fence it.

Senator LONG. Who would fence it; the homesteader or the cattleman?

Mr. BOARDMAN. Oh, the man that owned the homestead would have to fence it himself.

Senator LONG. Would not a homesteader be a serious inconvenience in one of these large ranges—his coming in and taking a homestead after you had leased it from the Government?

Mr. BOARDMAN. We used to think so, Senator; but we are all fast coming to the belief that the development of our country depends upon the settlement of the country, and we want to encourage legitimate home makers and home builders in Montana.

Senator LATIMER. What do you mean by a fence law? Do you mean that the crop must be fenced or that the stock must be fenced?

Senator PERKINS. What I mean is this, if you will pardon me: That a man that has cattle has to keep them off that land whether it is fenced or not.

Senator LATIMER. Well, it is the same way if he has not any cattle. Would he not have to fence his home farm of 160 acres?

Mr. BOARDMAN. Senator, allow me to correct you. In North Dakota they have what they call a herd law, but they do not have to fence there, and consequently a man that has got stock has got to keep it off from a homestead.

Senator PERKINS. That is the California law also.

Mr. BOARDMAN. That is the California law also.

Senator LATIMER. He has to fence his stock and the other man does not have to fence his land?

Mr. BOARDMAN. Yes; in Montana.

Senator LATIMER. That is a no-fence law.

Mr. BOARDMAN. In Montana we have a law that a man has to fence his homestead or his holdings.

Senator PERKINS. That is where I misunderstood the law in your State as contrasted with ours in California.

Senator LATIMER. Why would he not have to fence his land to

make a crop when the law requires that stock should be kept off, in case he has no stock of his own?

Mr. BOARDMAN. The law does not require that, Senator, in Montana.

Senator PERKINS. You misunderstood my question. Of course that is different from what it is in the Dakotas and what it is in California and what it is in some of the other States. With us, a farmer is not obliged to fence his land, and if cattle commit depredations upon it the owner of the cattle is liable for the damages.

Senator LATIMER. That is the case in South Carolina, too. Now, what do you say is the difference in the situation in Montana?

Mr. BOARDMAN. We have a fence law under which if a man wants to keep stock off from his homestead or whatever amount of land he has a title or right to he has to fence it.

Senator LATIMER. And the cattle may run at large?

Mr. BOARDMAN. The cattle may run at large.

Senator LATIMER. On any land that is not fenced?

Mr. BOARDMAN. On any man's land that is not fenced.

Senator PERKINS. There is no inducement for a man from South Carolina to take out a homestead in Montana under those conditions. He had better come to California.

Senator LATIMER. We have the old system in South Carolina; where the cattle run out we fence the farm. That is what you have to do up there?

Mr. BOARDMAN. Yes; we have to fence the farms up there to keep the cattle off. If a man puts in a crop and wants to preserve it, he has got to fence it.

The CHAIRMAN. If there is nothing further, we will hear the next speaker, Mr. Gray, of Colorado.

STATEMENT OF T. W. GRAY, ESQ., OF GUNNISON, COLO.

Mr. GRAY. I am from the high mountain section of Colorado, in the western part of the State—the extreme high mountain section, among the very small cattlemen. The conditions there are these: We are all small. There is not a man in our whole section of western Colorado that you can term a large cattleman as compared to the men of New Mexico and of Montana, because it is very seldom that we run across a man down there that has even a thousand head of cattle.

Now, the conditions are these: The valleys are settled. Everything is done by irrigation. We can raise our hay, and most of us have to feed our cattle through the winter. We have the mountains and the forest reserves for the summer range. Now, they bring in sheep from Utah by the train load and the train load, and they drop right onto us fellows up there in the mountains, and we have either got to fight for a living or we have got nothing. Now, those are the actual conditions.

Senator LONG. Which do you do?

Mr. GRAY. Which do we do? Ask the history of the criminal courts of Colorado. [Laughter.] We have taken care of ourselves. We are small. We have built that country, and we are going to take care of it.

I want to tell you what occurred when I left home. About twenty-five of the boys came down to the train, and they just spoke this way: "Now, try and do something, if you can, to give us our homes and

law and order." That is the condition in western Colorado. It is simply the home builder that needs protection, absolutely, right there; and I am among them.

Senator PERKINS. And you think an act of Congress permitting the Government to lease you the land is in the interest of law and order and good government?

Mr. GRAY. We in that section of the country prefer what is known as the permit system. I want to explain that point, and I am very glad you brought it out. The permit system will work very much better for this one reason: We have to turn our stock out away down on the low foothills in the spring of the year, because the snow has not yet gone off high up on the mountains. We have to turn them all out together. Our ranges are bounded by valleys. We turn them out there; and as the snow goes off—gradually clears away—up in the mountains, in July, August, September, and October, our cattle get clear up to timber line, often going as high as 12,000 feet. If you adopt a lease system in that country—if you leased to each individual a very long, narrow strip up through the mountains, it would be impracticable to use it. We would prefer a community interest, where 15 or 20 or 25 of us could have a permit to run so many cattle in there, bounded by natural streams—

Senator LONG. And no sheep men allowed. [Laughter.]

Mr. GRAY. Well, there are not any there, as has been said a number of times; the altitude is too high.

Senator LONG. It is not healthy for them?

Mr. GRAY. It is not healthy.

Senator DOLLIVER. But that can be regulated by the Department?

Mr. GRAY. It can be regulated by the Department. It is regulated upon the forest reserves, and it was a godsend to us when we got the forest reserve there.

Senator DOLLIVER. I wish you would get somebody to make a statement to that effect in the Senate.

Mr. GRAY. Well, I can do it. [Great laughter.] I am doing it right here.

Senator PERKINS. I wish Senator Heyburn was here.

Mr. GRAY. I know these conditions, because I have been there for over thirty years.

Now, if there are any further questions, I shall be glad to answer them.

Senator DOLLIVER. Would there not be a considerable competition among your own people as to their individual rights on this great mountain side?

Mr. GRAY. There would be comparatively little in western Colorado; and I will explain why. We can only handle so many cattle in that mountain section that we can feed through the winter. It is the home of the small cattlemen. We raise awfully good cattle, just as fine cattle as come to any market, but we can raise but few in number. We have to feed through the winter. We are limited to what we can feed, many of us.

Senator FRAZIER. Where do you get the feed from?

Mr. GRAY. We raise it in the valleys by irrigation. Most of these valleys are all settled.

Senator FRAZIER. Is that on homesteads or is it on Government land?

Mr. GRAY. It is their land, land that has been homesteaded. It is almost all patented now. It was all taken under the homestead law. The land I have I took under the homestead law, myself.

Senator LONG. The homesteader does not go up on the mountains?

Mr. GRAY. Very little—simply because it is pretty high, for one thing, and for another thing, you can not get level land enough after you leave the valleys.

Senator LONG. It would not interfere with his health to go up there, would it?

Mr. GRAY. No, sir; it would not. In the few places they have taken it, I tell you, we have welcomed them; and I want it so that under any circumstances the homesteader will be protected when he goes into any section of that country. Place anything around him that you want to give him protection.

Senator DOLLIVER. Do you think the ranchmen in the valleys would encourage people if they desired to take a homestead on the mountain side?

Mr. GRAY. Yes, sir; it is being done. I want to provide it in any shape it can be done that way, so as to make it strong for the homesteader—to support him in any form that you might see fit.

Senator LONG. Do you want him to pay for grazing, then?

Mr. GRAY. Why, most assuredly, when we pay for ours. We have homesteaded, and because we have homesteaded a few years ahead of him and gotten land a few years ahead of him, is there any reason why he should be exempt ahead of us? Let him pay his proportion.

Senator DOLLIVER. Is there any unwritten law among you there as to what amount of mountain range goes with a valley homestead?

Mr. GRAY. No, sir; we simply turn out, and under the forest reserve we get permits there. There is ample range for what stock can be raised if you can keep out the big herds of sheep. There is an unwritten law as to big herds of sheep. [Laughter.]

Senator LONG. How large must the herd be before the unwritten law applies?

Mr. GRAY. Well, 10,000 dropped in once. They did not take that many out. [Laughter.]

Senator LONG. No; I presume not.

Senator PERKINS. Is there much of the public domain fenced in your State, sir?

Mr. GRAY. None at all, sir; hardly any in that section. I will tell you what is fenced. There are just a few little pastures for horses for a round-up—just simply 20, 25, or 30 acres in a place now and then—and comparatively little of that. We are perfectly willing when the snow goes off to remove those fences, but we can not comply with President Roosevelt's order now, because if they send anybody out there now they will find those fences clean under under 10 feet of snow. It is impracticable to get them off at the present time, on account of the big snowfalls in the mountains.

(By direction of the chairman, Senator Warren thereupon read aloud the following letter:)

THE WHITE HOUSE,
Washington, February 11, 1907.

MY DEAR SENATOR WARREN: In accordance with our recent conversation, I am very glad to send you this short statement of my position regarding Government control of the range.

I am fully in accord with your view that the local control of the range should be in the hands of western men familiar with stock raising, and I believe in full local participation in the management of the range. Of course you must not divide responsibility to a point where you can hold no one responsible, but cooperation between the stockmen and the Government officers is absolutely essential.

The grazing fee should be a small one, and especially so at first. I am not anxious that the Government should get a net revenue from grazing on the public range, but only enough to pay for administration and improvement, and any surplus might well go to the States and Territories in which the fees are collected.

As soon as a bill for range control is passed, it goes without saying that such control should not be taken hurriedly, but gradually, as grazing districts can be organized. There is one prime essential in this policy of range control—the homesteader must be protected in his right to create a home for his family, and he must have whatever range rights are necessary for that purpose.

At present it is unlawful to fence the public domain. All fences unlawfully maintained will have to be taken down. Unless Congress takes action to legalize reasonable and necessary fencing through Government control of the range, there will be a very serious loss to stockmen throughout the West, whose business in very many cases can not be conducted without fencing, and this loss will often fall hardest on the small man.

I can not consent to a clause continuing for a year, or for any length of time, the present illegal fencing. The utmost I will consent to, so far as my power extends in the matter of legislation, is to continue such fences as in my judgment it is right and proper for me to continue. My first care is for the homesteader and the small stockman.

The opposition we have to our proposal now comes primarily from the big men who graze wandering flocks of sheep, and who do not promote the real settlement of the country. These are the men whose interests are diametrically hostile to those of the home maker, who wish to eat out and destroy the country where he desires permanently to live, and who, when they have thus ruined the land of the homesteader and small stockman, move elsewhere to repeat the process of devastation. Many of the sheep men who are permanent dwellers in the land sympathize with our movement. Others, unfortunately, sympathize with their nomadic brothers, the ultimate result of whose actions is to destroy the country. It must be distinctly understood that the opposition to the proposed measure for Government control is opposition aimed at the interests of the home maker, of the homesteader, of the small stockman, of the large stockman who desires that the country shall become better and not worse, and that it is in the interest only of those who think that by continuing the present system they will be able to monopolize an improper portion of the public domain, and who are quite indifferent as to whether in the long run they destroy it.

Sincerely, yours,

THEODORE ROOSEVELT.

Hon. F. E. WARREN,
United States Senate.

STATEMENT OF C. E. AYER, ESQ., OF DIXON, WYO.

Senator LONG. What is your business?

Mr. AYER. I am a ranchman and a homesteader. I homesteaded the land on which I live, and I have lived in that neighborhood now for a little over eighteen years.

Our conditions there are similar to Mr. Gray's, but we have two elements to contend with. We have the large stockman as well as the sheep man; and we have a territory, the Red Desert, where it is a fine winter range, and cattle can be turned down there in the winter time and come out without any loss in the spring, and we, as small ranchmen, are afraid to let our cattle go down there, because if there should come a hard winter we would lose them, and consequently we keep them home. In the little valley where I live there are probably 20,000 head of cattle; we have an association of about 80 members, and there are men that own from 10 and 12 head up to 1,000 and, I guess, 1,500, that are members of that association.

Last year we had the Park Range Forest Reserve that has been organized, and this last summer we got permits to graze our cattle on that forest reserve, and we are well pleased with the manner in

'which it was done. But the whole territory not being forest reserve, it does not protect us in the spring and in the fall and in the winter; and while we could get along fairly well as far as the winter part of it is concerned, the spring and fall range we must have, because we can not feed our cattle on the forest reserve in the spring and in the fall. We can feed them in the winter time; and these large herds of steers will come in there, ten or twelve thousand head, belonging to one man or one company, and they are just about as big a detriment to us as the large herds of sheep. We have had some trouble with the sheep men, but I am glad to say that in the last summer, owing to the control of the Park Range Forest Reserve, we did not have any trouble at all; and we are well paid for what it cost us for our permits, 20 cents a head, in not having to have any scraps with the sheep men.

I believe that is about all I can say.

Senator LONG. How do the sheep men like the arrangement?

Mr. AYER. Why, it seems, from what I have heard, that they do not like it.

Senator LONG. How do the homesteaders get along? How would they fare under this legislation?

Mr. AYER. Well, I might say this: That if I could get, under a Government permit, sufficient range for 100 head of cattle at the present time—that is, pasture that I can fence in or a range that I can control 100 head of cattle in at the present time—as fast as my herd will increase I will increase the grass on that land sufficient for my increase of stock, and I would be well satisfied; and that is the way that it should work with the homesteader. If he can take up 160 acres of land that he can raise hay and grain upon and also get control of sufficient range to pasture during the grazing season the stock that will eat up his feed in the winter time, I am satisfied that if he started in with 100 head as fast as his herd increased he could increase the grass that grows on this public range in proportion to the number of the increase of his cattle.

Senator LONG. Suppose that shortly after you got that range leased from the Government under this bill a homesteader should come in and take a homestead right in the middle of your range. Would not that interfere seriously with your lease?

Mr. AYER. It would; but then we are all glad to have him come in, because as fast as the country is homesteaded up it increases the value of our homesteads. The Commonwealth is improving, our taxes are divided among more people, we have less tax to pay, and any man would be foolish to object to more settlers coming in.

Senator PERKINS. Do you not think the large cattle companies would absorb the small settlers?

Mr. AYER. They would if it were sold; but if it is under a permit system or under a leasing system I do not see how it could be done.

Senator LONG. Would it not discourage homesteads within these large leased pastures?

Mr. AYER. I do not think it should, because if a man was to go now and take up a homestead, what encouragement would he have to go into the cattle business? He could not go into it to save his life. He would turn out in our neighborhood a small bunch of cattle, a dozen or 15 or 30 head of cattle to start with, and he might get the most of them back in the fall, but a good many of them would drift

into these large herds in the lower country. But if he had it so that he could fence in a piece of land or get a community interest so that he could fence in the entire range that was occupied by that community he could stop these cattle from getting away from him. They would not get down below and maybe die in the winter time; and it seems to me it would be an encouragement to the homesteader.

Under the present system he comes in there—and I can tell you in our immediate neighborhood of lots of men that have come in there and taken up land under large ditches that have been built and have been raising hay for two or three years past and have got these haystacks piled up on their land with nobody to sell their hay to, simply because they did not have the cattle, and they were not encouraged in buying them. They could not go to somebody and say, "Here, I want to borrow some money to buy some cattle with." The first question the parties they went to to borrow the money from would ask would be, "Why, what have you got? Where is your range?" "Why, I have got all this part of Rock County here." "Well, how are you going to control those cattle?" He could not say he could control them in any manner. They would get away from him. But if he had a tract of territory that he could fence in and lease it or get a permit to range his cattle there, he could say to these parties that he wanted to borrow the money from, "Why, I control this range; I have got this in addition to my homestead, in addition to what I have got homesteaded, and am raising hay on." That would be an additional security. There would be nothing in the world to hinder that.

Senator DOLLIVER. In point of fact, do people now occasionally take up a quarter section in these great pastures?

Mr. AYER. I do not know anything about that. We have no great pastures in our country. It is all open. There is no illegal fencing there at all.

Senator DOLLIVER. I refer to the public domain occupied by these herds.

Mr. AYER. It is all public domain.

Senator DOLLIVER. Do your homesteaders now go in there and try to get a quarter section of their own in the middle of these pastures?

Mr. AYER. Why, certainly; every year they are homesteading it up from the mountains, and lots of good homes are being established there. People are coming in there and taking up land that I would not have given a snap of the finger for five years ago, and they have nice homes, and they are happy.

Senator LONG. Do they have any friction with the large cattle men?

Mr. AYER. No, sir; not the least bit.

Senator FRAZIER. Have you any fence law in your State?

Mr. AYER. Yes, sir; we have a fence law.

Senator FRAZIER. Does it require the homesteader to fence his land?

Mr. AYER. Yes, sir; he has to fence his land.

Senator FRAZIER. So if he went inside of one of these pastures, for which you had a permit or a lease from the Government, he would have to fence it?

Mr. AYER. He would have to fence up his own land.

Senator FRAZIER. To keep your cattle out?

Mr. AYER. Yes, sir; and if he came in there, and it was a lease system, he would have to fence the land that he had leased, of course.

Senator FRAZIER. If he had located a homestead, though, within your lease, then he would have to fence his homestead or he could not—

Mr. AYER. Under the fence law of Colorado he would have to fence a certain part of it.

Senator DOLLIVER. Ought not this law to provide that one of these homesteaders should have a preferential right in the land adjacent to his homestead, at least in these community ranges or in the lease system?

Mr. AYER. Yes, sir.

Senator DOLLIVER. So that if there were a number of people applying for the right to pasture upon a given territory, the man who was there with his family should by no possibility be excluded from his right and interest in it?

Mr. AYER. No, sir; he should have the same rights that he has under the present system of forest reserve.

Senator LATIMER. Would you be willing for a provision to be inserted in the bill that would allow a homesteader to go on any piece of land that was leased, at any time?

Mr. AYER. Certainly; at any time.

The CHAIRMAN. It is so stated in this amendment.

Senator LATIMER. I wanted to find out whether he agreed to that proposition or not.

Mr. AYER. I certainly would, at any time. As far as the lease part of it is concerned, it ought to be regulated for a term of years, so that if a man leased a piece of land he should have it for a certain period; but it ought to give the homesteader the preference all the way through, the same as the operation of the forest reserve.

Senator DOLLIVER. But you would expect the forestry people to determine how many cattle should go upon a given area?

Mr. AYER. Yes, sir; somebody ought to do that.

Senator DOLLIVER. Now, suppose there were more people applying for an interest in this community range than could be admitted. Ought there not to be a specific provision that whoever is excluded from it—

Mr. AYER. Should be the larger owner.

Senator DOLLIVER. The homesteader should be the first man taken care of?

Mr. AYER. That is right; yes, sir.

Senator LONG. Should he be permitted to range his cattle within this leased area free?

Mr. AYER. He should be permitted, I should think, to range his domestic stock, his work horses, and milch cows, but outside of that—

Senator LONG. Free?

Mr. AYER. Yes; but outside of that he should pay the same as anyone else should pay.

The CHAIRMAN. Is there anything more from this witness? If not, we will call on Mr. Martin, from New Mexico.

STATEMENT OF C. W. MARTIN, ESQ., OF CARLSBAD, N. MEX.

Senator LONG. What is your business?

Mr. MARTIN. I am in the cattle business, sir.

The CHAIRMAN. These speakers are all members of your association?

Mr. MARTIN. Yes; I am a member of the American National Association.

The CHAIRMAN. Go on with your statement, Mr. Martin.

Mr. MARTIN. In the first place, sir, I want to plead guilty for myself and all our neighbors. We are in a scope of country there in the southeast portion of New Mexico which will average about 100 miles in distance east and west and about 300 miles north and south. There is not a drop of surface water in that whole territory. We have all got our wells and reservoirs, and as to the fence business, we have had lease fences there for twenty-five years.

Senator DOLLIVER. You have had what?

Mr. MARTIN. We have had lease fences built through that country every 30 or 40 miles, running east and west from the Pecos River to the Texas line. Wherever there is a fence we have had fences there for the last twenty-five years.

Senator LONG. On the public domain?

Mr. MARTIN. On the public domain; but very little of it has ever been surveyed. Most all of it is unsurveyed.

Senator PERKINS. Are there not large Spanish grants in there?

Mr. MARTIN. No, sir; there are no Spanish grants. It is all what we call Uncle Sam's domain; it is free land.

Senator LONG. And the fences have been there for twenty-five years?

Mr. MARTIN. Yes, sir; except that about one year, about four years ago, a special agent came there by the name of Mr. Hobbs, and he spent, I guess, two or three days driving over the range. He issued orders then to take all those fences down and roll them up and move them off of the public domain. I can safely say that there was about 90 per cent of those fences taken down and rolled up. We hired men to build us a machine and fasten it on a wagon, and we rolled up something like a thousand miles of fence and piled it up around our camps.

Senator PERKINS. That is, wire fences?

Mr. MARTIN. Yes, sir; wire fences—single-post wire fences.

Senator LONG. Did you take down the posts?

Mr. MARTIN. Yes, sir; he made us pull up the posts and move the fences entirely off the Government land. Well, we undertook to run the business one winter and one summer without the fence. The result was that the cattle commenced to drift in the winter time. I am about 20 miles from the south line of New Mexico, and I can safely say that there were as many as 40,000 cattle that drifted and bulked up on that line of fence between the Pecos River and the Texas line. I was there myself, and we had from 40 to 50 men and at least 500 head of horses trying to move that bulk of cattle back and scatter them out at our wells where they could get water. There was no way for them to get water except at the wells that we have sunk on those claims. The result was that we figured that we lost about from 30 to 40 per cent of our cattle. There is a man here in the room that I have been selling my cattle to for the last fourteen years; he was here a while ago, Mr. De Ricques. That spring he came to buy my cattle, and he cut the price of them \$5 a head. He had paid me \$15 for my yearling steers for twelve or fourteen years, and twenty for my twos. My cattle were in the same condition with

everybody else's; and he only paid me \$10 for the yearlings and \$15 for my 2-year olds.

We just thought that we had to get out of the business, or do something. So we worked a scheme and got a law passed over in Santa Fe to allow the commissioners' court to build a string of fence along the public roads. The authorities there, the commissioners' court, have the authority to lay off roads anywhere in the Territory; so we kind of laid them off every 30 or 40 miles. [Great laughter and applause.] And those fences are there to-day. And if we men have to do what the President says we have got to do—and I don't believe he would lie to us—we have got to get out of the business or have some relief. We have got to have a lease law, or we have got to have a drift fence law, or something that will enable us to control our cattle. There are all of 280,000 cattle in that strip that I am speaking of; and if there is any cow man here who knows what they will do on the plain where there are no breaks—there is nothing in the world that will stop them but a barbed-wire fence. They will go from 50 to 100 miles in three days and nights; and that is the condition we are in. Those fences are still up, and if they take them down we have got to get out of the business.

Senator LONG. The same wire and the same posts that were taken down?

Mr. MARTIN. Well, sir, mighty near all the same. As soon as we got that law passed, we got busy [laughter] putting fences along the roads. There is no use in our not pleading guilty, because they are going to come there and see what we have got, and I am going to tell the truth. I have been in the business forty years. I was born and raised in Texas, and we never had any peace and we never had an animal that would sell for anything like a reasonable price in Texas until we got a lease law, and now we have got as good cattle as they have in Missouri or anywhere else.

Senator PERKINS. You attribute your loss of 30 or 40 per cent wholly to removing the fences, and not to the drought?

Mr. MARTIN. The drought had nothing to do with it. I will tell you, Senator; I branded 2,100 calves on my ranch during the year before these fences were taken down. The next year I branded 802 calves, and never sold a she animal, and that was about the condition that all my neighbors were in.

The CHAIRMAN. It resulted in a tremendous loss to all of you?

Mr. MARTIN. Yes, sir. We can't run it three years without going broke. We have got to get out of that business if we do not get relief.

Senator PERKINS. I want to ask this question for information: Where these wells were sunk, and you had your crops in, why would your cattle leave those wells, even if the land was not fenced?

Mr. MARTIN. When a storm comes up from the north there and the wind commences to blow, every animal you have got for 200 miles starts from the wind in the winter time.

Senator PERKINS. What is the altitude of this land? How high is the land there?

Mr. MARTIN. Well, Senator, it is pretty high, and it is as level as it can be. It is a regular desert, you know. The Pecos River runs on the west side of us. For 90 per cent the Pecos River on each side is under cultivation. They have taken it up, and it cuts our cattle

off from the river, and we are very glad of it. It is very fertile land there; but there is not a drop of surface water unless it rains. And I want to say another thing about those sheep men: I never see a sheep man and I never see a sheep until it rains and puts a little water out close to my ranch; and then they will come in there, with a Mexican or two, and they will stay until that water gives out, and then they are gone. I do not know where they belong, or anything about it; but there are no sheep out in our country. It is a little too high for them.

Senator DOLLIVER. Are there any unwritten regulations among your people as to how many cattle are entitled to go on these pastures?

Mr. MARTIN. All we ask a man in the world, when he comes in our country, is to dig him a well and get water and put him in some good bulls and act the gentleman and he is at home with us. [Laughter.] That is all we have got to say to any man.

Now, you are talking about the little settlers: We have got some settlers there, and we have got a post-office there, and the cow men buy everything in the world they will raise, from a watermelon up. We want them in there. If they can come in there and make a living, we want them—all of us.

Senator LONG. Is there any law about the sheep men coming in there?

Mr. MARTIN. None in the world, sir.

Senator PERKINS. But, as a matter of fact, it is no place for homesteaders; it is only fit for cattle?

Mr. MARTIN. Well, sir, there are some little groves in that country where there is shallow water and good soil, and homesteaders are taking it up. We have a good school there close to me, with about 20 or 30 settlers. There is a little grove there, and you can get water from about 50 feet to 100 feet. They are trying to make a living there. It is a pretty hard struggle, but they may do it.

The CHAIRMAN. I guess you will do it.

Mr. MARTIN. I think they will; I hope they will.

**STATEMENT OF ROBERT TAYLOR, ESQ., OF CASPER, WYO., AND
ADMAH, NEBR.**

Mr. TAYLOR. I am from both States, gentlemen.

The CHAIRMAN. Please give us your views about this matter.

Mr. TAYLOR. Well, Senators and gentlemen, a good deal of the ground has been covered. I can only speak from an experience of thirty years in the stock business, reaching from California into Wyoming, Montana, and Nebraska, and covering all kinds of stock—sheep, cattle, goats, horses, and hogs. That is what experience I have had.

Excepting in the case of my Nebraska holdings, all these years I have been a partaker of Uncle Sam's bounty on the open range; and I want to say in a few words that, looking back over these thirty years, I see a trail of blood from California—from the Pacific coast almost to the Missouri River. This is within my personal knowledge. I have seen assassinations; I have known stock to be killed and maimed and destroyed, and I have seen property destroyed and a spirit of lawlessness engendered among the stockmen that I think is a menace to any good government or any good nation.

That has been my experience, and, therefore, although I have been a participant in the benefits, such as they are, of the free-range system

for years, I have always contended that the only safe and sane plan was to have these ranges controlled. That is my position.

If you wish to ask me any questions regarding the different States I will be glad to answer them. I am a believer in this system; that is all I can say.

Senator PERKINS. You have had such a varied experience in all of these States that you must be familiar with the railroad grants. What relation will they bear to the Government land in leasing this land?

Mr. TAYLOR. The railroad grants?

Senator PERKINS. Yes; they having the alternate sections, does not that embarrass the Government in making proper leases to protect you or others who are desirous of leasing this land?

Mr. TAYLOR. I will say about that that wherever there has been, in my experience, any leasing done by the State or any parties owning the land it has always been a success and a settlement of all troubles. In the State of Wyoming, the Union Pacific Railroad, which owns the great bulk of the 20-mile strip on each side through there, leased, a few years ago, its lands to two county associations of woolgrowers—the Carbon County Wool Growers' Association and the Sweetwater Wool Growers' Association. They rented this land at a very low rental, 1 cent per acre, the renters knowing that they would get, under our Wyoming laws and usages, the full use of the Government land inside; because I want you to understand that while cattle are free comers and can be turned out in Wyoming, anything that is under the control of man, like sheep, is trespassing when it goes onto anybody else's land. That is the law.

Senator PERKINS. You have had a varied experience in all these States. The reason I asked you the question was this: Some years ago, about 60 miles west, I think, of Ogden, Crocker took a big tract of land that belonged to the railroad company and started his son and a man by the name of Taylor. They stocked it up, and it was stated to me at the time that no homestead settler would go within 50 miles of where they were; their cattle would run them off. That is why I asked you the question about that.

Mr. TAYLOR. No; I remember—I know about that case; about the circumstances of Crocker getting that railroad land; and these railroad lands in Wyoming have been leased very successfully and settled all kinds of trouble.

Senator PERKINS. They were railroad lands in Utah?

Mr. TAYLOR. Yes, sir; but the railroad lands in Wyoming are largely leased now. They are largely leased, except in places where they have been bought.

Senator DOLLIVER. Have you examined this bill that is before us?

Mr. TAYLOR. There have been some amendments suggested to it, Senator.

Senator DOLLIVER. Would you have any objection to an amendment providing specifically that in the allotment of these leases or permits to use pasture lands which are adjacent to lands occupied by homesteaders or bona fide settlers, the preference shall in all cases be given to such homesteaders and bona fide settlers?

Mr. TAYLOR. I think that is the proper thing, according to my idea. I would agree to a proposition of that kind as being the proper thing.

STATEMENT OF E. J. BELL, ESQ., OF ALBANY COUNTY, WYO.

Mr. BELL. Mr. President and Senators, in order to make myself more plain to you I will have to define my location in life. I am in the cattle business and also in the sheep business, and I am proud to say that I am in the farming business also.

Possibly if I were endowed with the power to express myself I might impart some information on this subject that you have here before you. One thing that discourages me just a little bit is this: We had a meeting this morning with the Land Commissioner, and after we had a hot discussion up there the Land Commissioner stated that they had already passed their opinion before we came here. If that is the truth, it would discourage me in this case from telling you what I think about this. If you want to hear the matter as I understand it, I will give you my views of it; but I would hate to have you, after we get through here, inform us that it had all been decided before we got here. That would be a very discouraging feature, after we have come here.

The CHAIRMAN. No, no; go on, Mr. Bell. The committee has decided nothing.

Mr. BELL. That is all right, then. I wanted to be understood plainly on that point. That actually occurred this morning.

The CHAIRMAN. In fact, we have not considered it.

Mr. BELL. That is all right.

It is a happy thought to start out with, to have made peace with these three combinations in our country. To be a farmer, a cattleman, and a sheep man to me is perfectly easy. It works in perfect harmony in every sense of the word. I believe that a great many men draw upon their imagination in this respect, and state things that do not exist. You would infer from what you have heard and understood from these cattlemen that the sheep men are the most awful men in the world. I do not believe that is so. Neither is the cattleman an awfully bad man in our country. We get along first-rate in the business. I am not alone in this business in our section of the country. In our county we are at peace and harmony in every sense of the word, both farmers, sheep men, and cattlemen.

I believe, if you want the facts as they are, that there is a vast difference between our section of the country and other parts of Wyoming, and that in the event that you ever pass a leasing law you would have to know all these facts and these conditions that exist. I believe that it might be to your interest, so that you could deal fairly with all.

First, in our section, should you ever pass this leasing law, I believe our land in Albany County—and I say this with some degree of pride, living there, as I do—is worth a cent and a half an acre or possibly two cents an acre; but I do believe that in other parts of Wyoming the land would not be worth over a quarter of a cent or half a cent an acre at the most. If the sheep men in that part of the country understood that you people, if you ever pass a law, would act accordingly, in justice to these conditions that exist, I do not believe that you would find so much opposition about this leasing proposition.

Now, I will quote to you a little circumstance: We feel that we are small. I feel that I am awfully small. Not one man in this house has ever been as poor as I have been and broke as many times as I

have been broke. But I have accumulated quite a little holding of land out in that country. We bought it; we own it. We bought it from the Union Pacific Railroad Company, and we are using the alternate sections, and we are doing it at peace; and I am perfectly willing to continue doing that if you will let me. But if you see your way clear, and in the interest of our great country feel that you ought to lease these lands I want to say to you that I am perfectly willing to pay a reasonable price for it.

Now, what is that reasonable price? We have decided to segregate our large holdings, as you might call them, as some of them would say. We own between thirty and forty thousand acres of range land. That does not include our hay and farming land. We are now parting with that in this way: If we have sold a man 2,500 sheep, or expect to sell them to him, we sell him 5,000 acres of land. We assume that he is going to use the other 5,000 acres of the Government land; and we figure that by providing 100 tons of hay for the winter he can safely run 2,500 sheep on 10,000 acres of land. Now, these are facts. I brought some of the contracts here, but I left them at the hotel. I would have brought them up here if I had known anything about this matter coming up in this way.

Now, we figure that we are in the very best part of Wyoming—I ought to be perfectly safe in saying this—in Albany County. But if it will take 10,000 acres of land there—5,000 belonging to the Government and 5,000 belonging to ourselves—to run 2,500 sheep, I do feel that it is safe to say that it would take 40,000 acres in other parts of Wyoming to run 2,500 sheep. I believe there are men here that will bear me out in that statement—sheep men, too; and I believe that if you do pass this law, if you see it to your interest and to the interest of the people at large to pass this law, that you must take into consideration these conditions, and it is only fair. I think Mr. Pinchot in a measure will agree with me on those things. He has been giving these things his personal inspection.

Senator LONG. This proposition is simply to turn the matter over to the Secretary of Agriculture and let him determine the price that should be charged.

Mr. BELL. I am frank to say to you, as I have said before—and I was conscientious in it; if I was mistaken, it was an error of the head and not of the heart—that I think it is a mistake. I really believe that.

Senator LONG. A mistake to do what?

Mr. BELL. It is a mistake to leave as big a proposition as 400,000,000 acres of land in the hands of so few people. I believe that. I do not believe that if they were endowed with the honesty of Jesus Christ, and the fairness that he had, they could satisfy the people.

Senator LONG. Are you acquainted personally with the Secretary of Agriculture?

Mr. BELL. Yes, sir; and I will tell you that I want to say—I do not know; who is the Secretary? Let me see. Who is he?

A GENTLEMAN. Secretary Wilson.

Mr. BELL. Secretary Wilson—I have every confidence in God Almighty's world that one man could have in another in Secretary Wilson; but I will say this: One of my missions here is to do that as much as this; and I am going, before I get back, to get down on

my knees and beg Secretary Wilson and Mr. Roosevelt to make us a visit and see what we are doing in an agricultural way in Albany County, Wyo., this year.

Senator DOLLIVER. Whom would you have fix the price—the rental?

Mr. BELL. I believe, in justice to our State—now, you understand that while we are there, we have gone there under some difficult circumstances. We have built ourselves up. Not from a legal standpoint, but from a moral standpoint, we really believe that we ought to have, perhaps, some little rights over some other fellows that would come in. Not against the homesteader, of course—

Senator DOLLIVER. But you do not get my question. You propose that the Government shall lease these lands?

Mr. BELL. Yes, sir.

Senator DOLLIVER. And you have stated that the value of them varies in different parts even of Wyoming?

Mr. BELL. Yes, sir.

Senator DOLLIVER. How would it be possible to enter upon a scheme of that sort unless the power to determine the value of these lands should be conferred somewhere?

Senator PERKINS. The Secretary of Agriculture would naturally consult stock gentlemen like yourself, and get your judgment and that of other stockmen, and be guided by it. According to your statement, sir, some of this land is worth $1\frac{1}{2}$ cents an acre; some tracts are worth 2 cents; other tracts not more than one quarter of 1 cent.

Mr. BELL. Yes, sir.

Senator PERKINS. He would naturally come to you or other gentlemen there and ask for your opinion, or appoint a commission for these different States to pass upon it.

Mr. BELL. Yes, sir. Well, if he would do that, of course we would help him out a great deal. But the fact of the business is that he would find so much variation in our statements out there that he would hardly know who to believe, unless he went over the ground and gave it personal attention. [Laughter.] Now, these are facts, you understand, and I am proud of them. I want to say to you with pride that I never lived in a country in my life where I had a higher regard for the people than I have for the people of Wyoming; and I want to say to you that that will include 99 per cent of them.

Senator PERKINS. Your people are something like the people in my own State—they are color blind when their own interest is concerned.

Mr. BELL. Well, that is true; I agree with you there. That is the fact—that the incentive of a man's own interest makes him partial.

Senator PERKINS. They become color blind; that is all. We mean all right, you know, but we can not see it just the same.

Mr. BELL. I understand; I believe you are all right; I do not take any exception to that at all, and I am not offended in the least. These are facts. [Laughter.]

Senator LONG. Do you think that Congress should make this schedule of charges?

Mr. BELL. Well, Congress, I want to tell you, has made so many mistakes [great laughter] that I would be a little bit afraid to leave it

to Congress [great laughter]. When I say that, I say that in a spirit of love.

Senator LONG. Whom do you think it should be left to?

Mr. BELL. Well, if you will leave that to me—I am glad you asked me that question; I wanted to speak of it, but I did not know just how to get into the subject. I believe that you or Secretary Wilson or Congress could do this: Find out who are the safe men in our country, and let the people who understand the situation out there handle that question in a measure.

Senator LONG. And let them determine what they ought to pay?

Mr. BELL. Let us make the division amongst ourselves in some way or other. That would be my idea of it.

Senator LONG. So you think that if the Government owns the land it ought to let the people out there say exactly what should be done?

Mr. BELL. Sir?

Senator LONG. You think, then, the Government ought to turn over to the people out there who are interested to say exactly what should be done, and the Government should have nothing to do with its own property?

Mr. BELL. No; I do not believe that. You passed what was known as an irrigation bill. It went through—a good one, too, I think. You have appropriated to the State of Wyoming \$6,000,000 to build reservoir sites, two reservoir sites in our State. Now, I am going to say this so that you may understand the attitude of some talk that you have heard here, and some that you will hear, perhaps. Some men believe from the bottom of their hearts that there are not 160 acres of land in the State of Wyoming that a man can make a living on. If that is true—I know they are mistaken; I know that—but if that is true, you have reclaimed land enough so that it would take 3,200 families to take up that land—3,200 families. You know what that means, when you figure it up at four or five to the family, how much of a population that would mean to our State. If that is true, and you expect them to take that land up and pay this Government back this \$6,000,000, at \$35 an acre, which you have allowed, and which the man that takes it up must pay back to this Government, you must make some provision for that man on the outside. If you do not want to give him anything right out, you can give him some of these lands that we are speaking about, so that he can live outside of this 160 acres of land. I think that he can make a good living, you understand, on this 160 acres of land. That is my opinion.

Senator DOLLIVER. With water on it—these irrigated lands?

Mr. BELL. These irrigated lands; yes, sir.

Senator LONG. And you want him to have it as a gift, you say, and not pay anything back to the Government?

Mr. BELL. No, sir; no. This Government never gave me anything on earth, and I have given this Government my time and my services and some of my money, and I am going to keep on doing it. I do not want this Government to give us anything.

Senator FRAZIER. You have been grazing your stock on its land for a good while, have you not?

Mr. BELL. Yes, sir; that is true.

Senator FRAZIER. You have gotten that much from it?

Mr. BELL. That is a fact; that is an actual fact. We have been doing that, and I am going to continue to do it until you stop me.

[Laughter.] These are just open facts. You want the truth about that. We did it, and we thought we were all right, because it has been a practice ever since I can remember those things. I went on the range some thirty or forty years ago. We have been doing that, and it is an actual fact, I am frank to say, that we have been in possession of it so long that if a private individual owned it we would keep it—under our laws, you understand.

Senator LONG. You have not fenced it in, anyway?

Mr. BELL. We feel that we have a moral right on it, anyway. We really feel like that; and I believe we are justifiable in it, gentlemen.

Now, I want to say this to you: That I am spending a good deal of time and a good deal of money trying to make homes for somebody else. I am doing it, and I am proud of it. And to show you, I told you about selling these lots in order that these people may go ahead. They are poor men. We are not selling them to the rich fellows. We are selling them to the poor man, and we are not even asking a dollar from them. We are loaning them the money to buy these 2,500 sheep. I am simply telling you this, so that if it ever comes to a leasing proposition you can get up and try to put it down. One man said something here to-day about 200 or 300 or 400 acres, or a section or two. You can not do any business on a section or two in Wyoming or in Montana or in Arizona. In some parts of Arizona it would take 40,000 acres to run 2,500 sheep.

I believe that if you ever do lease these lands, and want to be fair with the people who live out there, it is not your intention, because you live in North Carolina or South Carolina, as I infer—and that is a rather dear name to me, for my folks originally came from there—the fact of the business is that I suppose you do not want to hurt those people who live out there, do you? You would not want to do anything wrong to ruin those people, would you?

Senator LATIMER. We are just trying to find out what you want.

Mr. BELL. Well, God bless you, then—we are just willing to tell you, if you will let us. That is the idea. I simply want to tell you that you would naturally infer from some statements made here that the cattlemen want it because the sheep men do not want it. I want to tell you, as a sheep man and a cattleman and as a farmer, that at a reasonable price—at a reasonable price, such as we can make a living at, and a sufficient number of acres—I am frank to say to you that I indorse a proposition of this kind. That is, I indorse it if you could just get it in that way and put it in the hands of men who are big enough in mind, who are fair enough to do justice to all of us. The fact of the business is that I have learned to like Mr. Pinchot so much that I have been accused of falling in love with him and asking to have him adopt me. Now, I would be willing to have him adopt me if—

Senator PERKINS. But you are not willing for him to fix the rate he should charge you. [Laughter.]

Mr. BELL. Yes, sir; if he will go through my section of country and find out the conditions there I would be perfectly willing for Mr. Pinchot to fix the rate.

Senator PERKINS. Then we are all satisfied. We are going to leave this to the Secretary of Agriculture, to whom you have paid such a high tribute, after you learned his name [laughter], and he is going to bring our friend Mr. Pinchot in to assist him in advising you

as to the rate you shall pay; and Mr. Pinchot is going to ask you and your other neighbors what is right, and then he will draw his own judgment and conclusions.

Mr. BELL. Well, Mr. Pinchot has been fair to our particular part of the country. We paid 5½ cents for sheep, and we have understood that they will let us go in there for 4 cents this year. We appreciate that, and we think that they are now 2 cents too high. I really believe that, too. But we appreciate what he has done for us.

Senator FRAZIER. The lower he fixes the price the more you like him. [Laughter.]

Mr. BELL. I am frank to say, gentlemen, that I am mortal, and a man can do more with me by being extremely friendly than he can by abusing me. There is no question about that; and the evidence of that is that if Mr. Pinchot does favor me justly—I am not asking him to give it to me—why, of course it would not make me dislike him, would it? There is nothing wrong about that, is there?

Senator FRAZIER. No.

The CHAIRMAN. Is there anything more from this witness? If not, we will hear Mr. McKittrick, from Arizona.

STATEMENT OF W. H. M'KITTRICK, ESQ., OF ARIZONA.

Mr. MCKITTRICK. Gentlemen, let me speak first about the northern part of Arizona. The sheep men have taken the northern part of Arizona. There are very few cattlemen left. We have all heard about their troubles, so we will just leave them and go down to southern Arizona, where I live.

Senator PERKINS. Where is Doctor Perrine?

Mr. MCKITTRICK. In northern Arizona. His timber claim is up there.

Sometime ago we organized our Arizona Cattle Growers' Association, and we have 250 members, and about every one of the members of this association was in favor of a lease law. In the southern part of the country there are very few settlers—in fact, none outside of the old holders down there, what we call the old ranchers—those that have been there a number of years. People have asked why we want to pay for something that we are now getting for nothing—that is, to pay for the leasing of the ranges. It is for this reason: That during the twenty years that I have been in the business—and I think during the time that most of my neighbors have been in the business—we have not made any money. We have made interest on the money.

The range condition is like this: We will dig our wells, and have steam engine or gasoline hoists, mule power and windmills, and get a nice little herd of cattle together, and some one will come in with a lot of cattle from lower Mexico, or a lot of knot heads—scrub cattle that are of no commercial value—and they will bring their bulls with them, and they will turn those cattle on our ranges with our good cattle, and it depreciates the value of our cattle. Then, instead of settling there and taking up 160 acres, they will go in town and make their home in town. They will not brand their cattle, because they know we have to brand them to keep the thieves out. They never water their cattle, and the result is that pretty soon we are overstocked. We have got to ship our cattle out, and we have got to do

that every time we get a nice little bunch of cattle together; we have to ship our cattle out and sell them for almost nothing. That thing has been going on for almost twenty years, and that is the main reason why we want to pay for our pasture ground. I would rather have a few good cattle than a herd of scrubs, because they bring me more money. I feed them on my own alfalfa ranges at Bakersfield, and I get the weight out of them, and I would rather have a few cattle of that kind than all the scrub cattle that I could get.

Senator PERKINS. You keep them in Arizona until they are between 2 and 3 years old and then bring them up to Bakersfield and fatten them on alfalfa?

Mr. McKITTRICK. Yes, sir.

Senator PERKINS. Do not Haggin and Tevis, your neighbors, go down to Mexico and buy cattle there?

Mr. McKITTRICK. Not Mexico; no, sir. They also have ranches in Arizona and New Mexico.

Senator PERKINS. Who is running the Hearst ranch now?

Mr. McKITTRICK. I do not think those cattle come that way. Do you mean in old Mexico?

Senator PERKINS. Yes. They have a large ranch near Albuquerque.

Mr. McKITTRICK. They are not interested in cattle now.

Senator DOLLIVER. Where is your cattle market?

Mr. McKITTRICK. In California, and part of our steers we sell in Kansas and Nebraska, and some of them go up to Wyoming; but these cattle, mind you, have to go on the ranges. If we had a better class of cattle, we could sell them to the farmer who grows the corn. He could afford to fatten our cattle. Our cattle now are not of a quality to justify selling them direct to the Kansas farmer, or the Nebraska farmer, or the Illinois farmer, or the Iowa farmer, or any of those people. We have to send them out on the range.

Senator PERKINS. Colonel, I thought you owned a Spanish grant in Arizona there.

Mr. McKITTRICK. No, sir.

Senator PERKINS. You do not?

Mr. McKITTRICK. No, sir.

Senator PERKINS. You have been running on Government land, principally?

Mr. McKITTRICK. Yes, sir; and I have not made any money, Senator, for twenty years.

Senator PERKINS. And you are willing to pay rent now if we will rent the land to you?

Mr. McKITTRICK. Yes, sir; so that I can have better quality and fewer cattle.

Senator PERKINS. But, as a matter of fact, Colonel, in the southern part of Arizona, my observation has been—and I have been all down through that country; down to the line between Sonora and the Territory, and through there—that the man that gets the well, the water, virtually controls the range, and it is worth nothing to anyone else.

Mr. McKITTRICK. No; because they simply come in and turn these scrub cattle on you, and you have got to water them and take care of them.

Senator PERKINS. Yes; but if you fence the water you have them.

Mr. McKITTRICK. But you can not do that. You can not starve your own cattle.

Senator PERKINS. I know; but let your own cattle take water, and not your neighbor's.

Mr. McKittrick. Oh, yes; but there is only one man in Arizona that tried that, and it was a failure.

The CHAIRMAN. Is he living?

Mr. McKittrick. He is living, I am sorry to say. [Laughter.]

Senator PERKINS. Do you mean Mr. Greene, of Greene Consolidated?

Mr. McKittrick. Oh, no, sir.

Senator PERKINS. He had a large tract of land there.

Mr. McKittrick. He is down on the border.

Senator PERKINS. Yes.

Mr. McKittrick. But we have settlers there who do not make—in the twenty years that I have been down there, I do not think that they have been able to raise a crop four years out of the twenty.

Senator PERKINS. Did that Texas railroad grant extend through Arizona?

Mr. McKittrick. Yes; that is in the northern part. You mean the old Atlantic and Pacific Company?

Senator PERKINS. Yes. Have you been running on their land, or using it?

Mr. McKittrick. Oh, no; I am in the southern part. All of that land is given over to the sheep men. The cattlemen have left it.

Senator PERKINS. The railroad people lease that land to them?

Mr. McKittrick. I presume they do.

Mr. HANSBROUGH. You say the settlers have not come in there?

Mr. McKittrick. No, sir.

Senator HANSBROUGH. On account of the climate?

Mr. McKittrick. It is too dry. You can not raise a crop one year out of five.

Senator HANSBROUGH. Suppose they were coming in, would you welcome them?

Mr. McKittrick. We certainly would; men that come in to settle; but not these fellows, maybe, that would come in and turn a lot of these cattle loose on you, and then go back and live in town, as they do, so that the people can not raise crops there.

Senator DOLLIVER. What does the railroad exact as rental for the land it rents to these sheep people?

Mr. McKittrick. I do not know. The Southern Pacific has no lands, you know. It is only the old Atlantic and Pacific road, in the northern part of the Territory.

The CHAIRMAN. This completes the list of cattlemen, if there is nothing more from this speaker.

Mr. McKittrick. There are 250 cattlemen in Arizona who want fewer cattle and better cattle; and we would rather pay that money out of our pockets, because the price that we could get for good cattle would more than pay the amount we would have to pay.

Senator PERKINS. Do you think, Colonel, that public sentiment through Arizona is in favor of the Government leasing their land?

Mr. McKittrick. Decidedly so.

Senator PERKINS. The colonel has quite an extended experience, as he has stated to you, and is also identified with many interests in

California. I think public sentiment is so in California, is it not?

Mr. McKITTRICK. Yes, sir.

Senator HANSBROUGH. Along the lines of this proposed amendment introduced by Mr. Burkett?

Mr. McKITTRICK. Yes, sir.

The CHAIRMAN. From the way your cattlemen have presented your case, I wonder how you have avoided being elected to Congress. [Laughter.]

(The representatives of the cattle industry having been heard in full, the committee proceeded to hear the representatives of the sheep industry.)

Doctor WILSON (in response to an inquiry from the chairman). The understanding that we had at noon with your committee was that we were not all to talk, but that only two or three were to present the case, and we have arranged for only two.

The CHAIRMAN. All right; who is the first?

Mr. WILSON. Mr. Walsh, of Montana.

STATEMENT OF T. J. WALSH, ESQ., OF HELENA, MONT.

The CHAIRMAN. You are the representative of an association of sheep men?

Mr. WALSH. I have been delegated, Mr. Chairman, by the chairman of the National Wool Growers' Association, at the request of the president.

The CHAIRMAN. Please state your views about this measure.

Mr. WALSH. Yes, sir. Mr. Chairman and gentlemen, the gravity of this measure which you have under consideration is best appreciated when you reflect that by this legislation which you are now asked to enact you are called upon to reverse the uniform policy which the Government has pursued with reference to its public lands ever since it had any public lands. Ever since the general cession made by the States to the confederacy it has been the uniform policy of the Government to allow the pioneers on the margin to have the benefit of the public lands for grazing purposes free. You are now asked to make them pay for that. That is the situation. And, Mr. Chairman and gentlemen, the matter comes before you rather hurriedly, as it seems to us, in view of the very great importance attaching to this subject.

The other policy, the prevailing policy, is one the reasons for which everybody knows. They have been vindicated by a long course of history. The advocates of this new departure have undertaken to set forth the reasons for it in a preamble to the bill which was introduced by Senator Burkett, of the State of Nebraska. The reasons are in that preamble set forth at some considerable length. Evidently, in making this new departure, it was deemed advisable to invite the attention of the people to the reasons that suggested the change in the practice that had been so long adhered to, and it goes on to set forth those reasons. The very first consideration is the advisability of getting revenue out of the public lands, and that revenue is to be obtained by an application to the general body of the public lands of the system now obtaining with reference to the forest reserves, and, accordingly, the measure proposed by Senator Burkett carries out that idea. The first consideration is to get a revenue, and that revenue is to be obtained by an application of the forest-reserve system to the general body of the public lands.

I inquire of you, sirs, why should the Government desire to get a revenue out of the public lands? It has never pursued that policy before. The Government, as I understand, is not embarrassed at the present time and seeking for sources of revenue to let out some extraordinary expense, and if it were, I submit that it could find many subjects from which the revenue could be derived that would not work the injustice that this system would.

Besides, sirs, upon what principle of justice can the people of the State of Indiana, for instance, or the State of Illinois or the State of Iowa, that have always had the benefit of the adjacent public lands without compensation at all, insist that we shall now pay for that privilege? Until the last vestige of the public lands was exhausted in those various States their people always had this privilege. As you know, it has always been one of the most powerful inducements to emigration to the West. You could take up a piece of land, you could cultivate it, you could raise some cattle, and they could graze upon the public domain, and thus a man got a foothold.

Why, in our State, sir, men have gone 40 miles beyond the usual lines of travel, beyond the railroad lines, beyond the cities, because there they found a small piece of cultivable land, and they could range cattle adjacent to it. Accordingly, it contributed powerfully to the settlement of our State, in all quarters of it.

I submit, gentlemen, that that policy ought not to be overturned. It ought to be continued. And therefore there is no reason why you should seek to derive any revenue, at this late date, from the public lands. But, as a matter of course, taxation is always the concomitant of the derivation of revenue. The taxation, as a matter of course, must be imposed upon the people who use these public lands and who have used them in the past as commons, everybody with the same privilege. What will that taxation amount to? That is a consideration that will naturally address itself to you.

The forest-reserve system is to be applied to the general body of the public lands. Under the existing forest-reserve system, 6 cents a head is charged for grazing sheep upon the forest reserves for five months, from the 1st of June until the 1st of November. As a matter of course, when the entire body of the public lands is put under the same system, you must get the privilege for the entire year; and I apprehend, sirs, that we can not figure that on that basis the rate will be any less than 10 cents a head for sheep for the year.

What does that mean in the State of Montana? There are 6,000,000 sheep in the State of Montana, and at 10 cents a head you will impose a tax upon the sheep industry of the State of Montana of \$600,000. The cattle industries will probably contribute about as much; and so you are asked to impose a tax by this measure, hurriedly gotten up and endeavored to be put through here, of \$1,500,000 a year.

Why, Mr. Chairman, what does that mean? The aggregate revenues of our State government are not equal to one-half of that sum. We have some feeble, struggling little educational institutions in that State—a school of mines, and a university, and an agricultural college; and as it is we can hardly keep them alive.

But, Mr. Chairman, it is suggested that this proposed measure ought to be amended, so that whatever revenue is derived from the leasing of these public lands or the granting of these permits over

and above the expense of administration of the law should be turned into the States in which that revenue is collected. But, sirs, that must have been suggested in irony or thoughtlessly; because what does it mean? It simply means that you levy this tax upon the feeble, struggling stock interests and sheep interests of the State and turn it into the treasury, and to that extent relieve from the burden of taxation and the support of the State government the great mining corporations and railroad corporations of our State.

You can not stand for that sort of thing. You can not impose upon us a tax which will relieve them from the just burden that they ought to bear with us.

But, Mr. Chairman, it is not simply the burden of the tax that will be imposed upon us that makes practically our entire State unanimous against this bill. You have heard from my friend, Mr. Boardman, here. Mr. Boardman is a large cattle owner of our State. You may refer to your records here and you will find that the legislature of our State in 1901 passed a resolution unanimously protesting against the passage of legislation of this character. The Stock Growers' Association, gathered together in that State, have time and time again gone on record as in opposition to it. But here some time ago a score or so of gentlemen met and passed a resolution, Mr. Boardman supporting it, that inasmuch as the Administration apparently was determined to put the public lands under the control of the Secretary of Agriculture or otherwise, we would prefer a leasing system to a permit system.

I would like to say a word with regard to that in a moment; but the point that we make is not so much that it will impose this enormous burden of taxation upon our people, but that it will put our business absolutely under the dominion of the men who are charged with the administration of this law. I can best illustrate to you what that means by referring to the case of our own company.

I happen to be the president of the Riverside Land and Live Stock Company, a director of that company, and also a director of the Clear Range Company. They are both engaged in the cattle and sheep business. It so happens that in the case of the Riverside Company we are obliged to graze our sheep in the summer time on the Big Belt Forest Reserve, and our cattle on the Elk Horn Forest Reserve. We and our predecessors in interest have occupied this range in common with others in that locality for over thirty years, but it was recently included within these reserves, and now, inasmuch as you are asked to apply this forest-reserve system to the entire body of public lands, it may be of interest to you to know something about how the system works in this particular case. Understand, the point I am making is that the business is really taken out of our hands and the absolute control and dominion of it are put in the hands of the officers of the Government.

The question naturally arose concerning privileges upon the forest reserve. We sought these and others sought them. We asked for leave to graze 14,000 sheep on the forest reserve, and we got the privilege to graze only 7,500. Whether we will be given a privilege this next year or not we do not know. Mr. Potter this morning advised me that notwithstanding some unfortunate differences that existed between us last year concerning this matter, our permit will be granted this year. But we do not know. It lies in the power of these gen-

tlements administering this law to absolutely refuse us any permit whatever. That would compel us to sell our sheep on the market—17,000 sheep. The property has been gathered together as a sheep plant. If we are obliged to sell our plant, the property becomes practically valueless for that purpose. If we do not get the permit, the value of our entire plant is absolutely cut in two. It means a loss to us of \$50,000 if we do not get a permit.

So that you will observe that every man who goes upon the public domain, who goes out West and endeavors to engage in the sheep or cattle business, must engage in the business or must go out of it, depending on whether or not he can get the permit that he seeks from the Department of Agriculture. And so it is, gentlemen, that I say that the man who is charged with the administration of this work holds in the very hollow of his hand the future of the business of every man who is engaged in the sheep or cattle business in the West and who relies upon the public lands for grazing range. It may thrive under him, or he may put forth his hand at any time and crush it; and under this bill you put the unrestricted power to fix whatever regulations he sees fit, and to fix whatever tax he sees fit.

I have invited your attention to the amount of the tax that will be imposed, provided the forest-reserve system is kept in operation. And it is suggested that the revenue, the excess, will go to the States. But what will the fact be? Through the courtesy of the Forestry Bureau I am able to lay before you the amount of the revenues derived from the forest reserves last year, and what it cost to run them. The aggregate was as follows: Timber sales, \$253,132.22; grazing fees, \$514,086.74; total, \$767,219.96 revenue. Outlays: There were employed in the administration of the reserves 1,059 persons, at a total cost of \$779,519—a deficit of some thirteen thousand and odd dollars.

So that according to the showing made concerning the operation of the system now, it will cost as much to put in the field this army of rangers and district supervisors and riders as it is possible to derive from this source, provided the burden of taxation is no greater than 6 cents a head for sheep.

I called your attention to the consideration of putting the business absolutely in the hands of the officers here. As a matter of course, while we have every confidence in Mr. Pinchot, for instance, who proposes this, and Secretary Wilson, who would have the management of this, those gentlemen are obliged to rely for their action upon the representations of the man who is in the field. They are obliged to act on what the forest ranger tells them. He tells them, for instance, that the range will not bear more than so many sheep. They simply have his representation for it, except such information as they can gather by casual trips over the country. So that you will observe that in all cases it becomes a very important matter, and a large measure of discretionary power is reposed in the minor man.

For instance, in our case it may have been a just determination; it may have been unjust. We asked for 14,000 sheep, and the local man said, "7,500 is all you will be entitled to receive." We were obliged to either dispose of the balance or make provision for them elsewhere.

You will observe that he recommends that; he recommends that distribution. It was said that applications were made for 120,000 sheep, and they did not intend that more than 75,000 should be put

upon the reserve. The point I make is that you will see that there is abundant opportunity for controversy between the parties, and the penalty in every case is that your permit will be cancelled unless you observe the rules laid down.

But now observe, whatever may be done, it is not only the officer who is here in Washington in whom is reposed vast powers under this law, but, as I said to you, the local men in the field, who under the present arrangement gets \$75 a month, I believe, also exercises a vast power. Now, suppose he is entirely honest. Suppose he is only troubled with the ordinary infirmities of human nature. Suppose that, as we often err, he errs in judgment. He is ignorant of important facts. He is swayed sometimes by passion, and he listens to the suggestions of personal friendship, and he is amenable to flattery. You can readily understand what a vast sum of injustices he may do in the distribution of these favors in relation to these matters.

But, as a matter of course, if he is not absolutely honest, the difficulty is vastly increased; and then you hold out, as a matter of course, to everybody seeking these privileges the inducement to resort to corrupt methods in order to get them. We pray that you will lead not the people of Montana into temptation in this regard.

You are all interested, as a matter of course, in knowing our views as to how this system is going to work; as it affects the question of the settlement of these public lands; and, indeed, it is suggested that this reversal of the uniform policy of the Government in the matter ought to obtain now, because the lands still remaining for disposition under the public-land laws are of a different character than those that have been disposed of before; that they are useful or valuable only for grazing; that they will not be taken up to any extent by homesteaders, and that sort of thing. But the very law itself, gentlemen, you will observe, contemplates that a vast acreage of this land will be taken up by homesteaders and others desiring to appropriate them under existing laws, and it makes provision for that; and it would seem as though it was entirely complete and fair. It says that any homesteader can come in. But that is exactly the situation that exists under the forest-reserve system. Under the present forest-reserve system a man may go upon the forest reserve and locate a homestead, but he never does it. He would be foolish to do it, and it needs no argument to tell you why he would not.

It has been said here in the course of this discussion that this bill will induce immigration, because the man who goes upon the public domain will be assured of an opportunity to get land around his place upon which to graze his cattle. How will he be assured? It is not any right that he has. He gets it by the grace and privilege of some one here in Washington, upon the suggestion of somebody who is out in the field, who may or may not be influenced by some of these large cattle companies and sheep companies of which we hear, who have already had privileges all around.

And then, as to the leasing law, gentlemen. A large portion of the argument in favor of this matter—I need not say it at all, it has been evinced here in the course of the argument—a large portion of the support of this measure comes from two sources: In the first place, a great many men want protection against drifting bands of sheep. That is a proper measure. I believe that it ought to be penalized; that the proposition of a man coming from a remote State, or a dif-

ferent section of the State, and grazing his sheep around a man's place, 100 or 200 or 1,000 miles away from where he lives, is wrong; and you can regulate that easily enough by making that thing punishable. But it is also observed that some further support for these measures comes from people who have inclosed large portions of the public domain and are a little bit afraid that they will come into contact with the law of 1885; and they want to have that thing legalized. I have no doubt that none of the gentlemen who have suggested this other measure here are in that situation, but a great many are.

So far as that measure is concerned, gentlemen, that act of 1885 was passed in obedience to the policy to which I have invited your attention of holding out every inducement to people to take up homes on the public domain and to throw no obstacle whatever in their way. I pray you do not do anything to go back on that. That is a wise public policy embodied in that law, and speaking for the people of my State, I beg to say to you that they do not want it repealed and they do not want any temporizing, either, with the enforcement of it. I speak to you, sirs, as one who has had the defense of men charged in my State with the fencing of the public domain, and I advise you, sirs, that any man who is guilty would be wise to make his peace with the Government rather than to take his chances before a jury in our State, for they will convict him if there is any ground at all upon which they can do it. They want every restriction against the appropriation of the public domain by settlers absolutely thrown down and taken away. So that we ask you not to do anything to restrict the operation of that measure.

You will observe, as I said, that a man does not go upon the forest reserve and take up a homestead. And why? He is entitled to take up 160 acres of land in the middle of a forest reserve. If his cattle stray beyond the limits of that 160 acres he is immediately in trouble with the forest-reserve system. And, in addition to the burdens that are upon him in endeavoring to take up a piece of land, he has to pay a tax for the privilege of grazing his sheep and cattle outside of his little limits of 160 acres or he must not graze any at all. And thus it is, Mr. Chairman and gentlemen, that the least little bit of an obstacle put in the way of these men is going to change their opinion, and the man that is earning \$3.50 a day in a mine will conclude to stay at that operation rather than go upon the public domain and take up land.

Another thing: When you come to consider the imposition of this tax upon our people, I beg you to consider, also, that our State stands next to Canada. She stands right there at the border, beckoning these people to her and away from us, and we ask you not to throw any obstacles whatever in the way of those people taking up these vacant lands in our State.

You will also observe that under the leasing system it is contemplated that a considerable portion of the public domain will be leased to a man and he will be entitled, as a matter of course, to fence that land. He will be entitled, for instance, to lease a section of land.

It is said that a homesteader can go inside of his fence and take up a claim right in the middle of it. But imagine for a moment a settler doing anything of that kind. Here is a township of land; there is a little tract of land that is capable of cultivation in the center of that township. A man goes there and he takes up 160

acres and he puts a fence around it; but in order to get any place whatever for his cattle he has to drive them out to the margin of the township, 3 or 4 miles away, and put them through a gate there and put them outside upon the public domain in order to get any privileges at all. Who is there here that imagines that he will do that?

Senator DOLLIVER. I understand, however, that this scheme proposes to admit him to a community of interest in this adjacent land.

Mr. WALSH. True.

Senator DOLLIVER. And, if it is to be leased, to give him a reasonable leasehold in the adjacent lands.

Mr. WALSH. Quite true, Senator, but the lands, I assume, are already leased. Some one has a lease of those lands for ten years and has a fence around them. Some one has a fence around a section with a lease of those lands for ten years. I also assume that he has the privilege of going on the inside of that man's fence and taking up a homestead, but I do not assume that—

Senator DOLLIVER. This bill provides that notwithstanding that lease nothing in the terms of that lease shall interfere with the man's right to enter a homestead within the limits of the lease.

Mr. WALSH. True. I am endeavoring to explain to you that he will not do so, however; because when he goes to a remote section of the country and takes up a homestead he takes it with the idea of using the adjacent public lands for grazing his cattle. Now he takes up a homestead in the middle of the township and is obliged to drive his cattle 3 miles to a fence and open a gate and then put them beyond upon what becomes the public range.

Senator LATIMER. Then, if the grazing is destroyed, so that cattle can not live there, what would be the effect?

Mr. WALSH. As to the grazing in the State of Montana, the number of stock running on the open range is, as a matter of course, lessening every year, and that is because settlers are taking up more and more of the land all the time. Let me continue a thought that I had a moment ago, and if I do not answer your question, I shall be very glad to have you refer to it again.

It is said that these lands are different, and that they are simply grazing lands, and are different from those that could be taken up for purposes of settlement. But as a matter of course that is a matter of cultivation. There was a time when everybody thought that two-thirds of western Dakota and Nebraska and similar States would not be cultivable at all; and I recall very distinctly when I arrived in the country, that over a score of mortgage companies were bankrupted because of unsuccessful efforts to farm that country. Everybody knows that it is farmed successfully now, and that is the great grain-growing section of the country. The extension of dry farming in our State is something that perhaps few of you who are unacquainted with the matter realize. There are vast areas of our State that were taken up less than ten years ago simply for grazing purposes, at a cost of from a dollar to two dollars an acre, that are to-day selling for anywhere from ten to twenty dollars an acre, and are raising crops that will justify it, by the system of dry farming. And now, also, the Department of Agriculture and the agricultural colleges all over the country are engaged in experimenting with drought-resisting forage plants, so that many thousands of other acres that are now considered absolutely useless for the purpose of cultivation

will be made available to settlers. Not only that, but great schemes of irrigation are now being conducted by the General Government within our State for the watering of these lands, by which other settlers will be invited to take up those lands. But as a matter of course, in the course of time, at some time or other a point will be reached where it will be impossible for a man to make a living upon 160 acres of land. But even then, why not induce him to go there and take up that land by permitting him to eke out a small existence by privileges of this kind upon the rocky and mountainous regions of our country?

Senator DOLLIVER. Will you answer a practical question for me just there?

Mr. WALSH. Yes, sir.

Senator DOLLIVER. At present these land companies have a kind of unwritten tenure of these pasture lands; and what show does a homesteader now stand to go into a country occupied by sheep men and cattle people and participate in that pasture?

Mr. WALSH. I am very glad to answer that question, gentlemen. There is not in any part of the State of Montana to which my acquaintance goes—and I am thoroughly acquainted with every corner of it—any place where there is the least sort of resistance or toleration of resistance to a man taking up lands. And I may also say that I have been engaged in the range cattle business myself now for something over eight years, and I am going out of the business simply because the taking up of the lands has so restricted the range that it is no longer profitable to stay in the business.

Senator DOLLIVER. What I want to find out is this: Here is a range that is already overfed by cattlemen and sheep men.

Mr. WALSH. Yes, sir.

Senator DOLLIVER. And here comes along a poor fellow who homesteads a quarter section of it. What possible access to that range that is of any real value to him as a cattle producer does that man have? It is all cropped to death already.

Mr. WALSH. That is simply a supposititious case. There is no portion of the State of Montana that is cropped to death; and manifestly it is just as good range for the man who takes up the homestead as it is for the stock of the cattle company that is engaged in grazing there. If it will furnish feed for the cattle company's stock, it will furnish feed for the homesteader's stock. And so it is, sir, that the land is being constantly taken up; and you can refer to the statistics of the land officers of our State, and confirm the statement that more homesteads are being taken up within the last four or five years than, I believe, ever before in the history of the State. Congress within that period has created two new land districts in our State, at Great Falls and Miles City.

Senator HANSBROUGH. To what extent do these stockmen and those interested with the stockmen induce settlers, poor men, to go on the lands and hold them and prove up on them, in order that they may sell to the stockmen? Does anything of that kind take place?

Mr. WALSH. The records of the Attorney-General's office will show you that prosecutions are being continually carried on in practically all of the Western States for that sort of thing.

Senator HANSBROUGH. Yes, we know that; but I am asking you. You are right from that section.

Mr. WALSH. Yes, sir.

Senator HANSBROUGH. I want to know to what extent, in your observation, this thing goes on, if at all?

Mr. WALSH. Really, sir; the number of people who take homesteads for the purpose of turning them over to anybody is practically trifling. It does not, to my knowledge, speaking as an attorney familiar with that business, obtain to any particular extent in our State. That there are occasions of that character, as a matter of course, I am not undertaking to deny.

Senator LATIMER. There is one point I would like to hear you on. You have stated that the desire of the people of Montana and the western country is to have homesteaders?

Mr. WALSH. Yes, sir.

Senator LATIMER. And it has also been contended——

Mr. WALSH. If you will pardon me, our State legislature has just appropriated \$25,000 for the purpose of advertising the resources of our State, with a view of attracting homesteaders to the State.

Senator LATIMER. I am not questioning that proposition; but, I say, it has been contended by all who have spoken here that the desire is to have homesteaders.

Mr. WALSH. Yes, sir.

Senator LATIMER. It has also been contended that the large number of cattle that range on that pasture destroy the grass, and so it has not an opportunity to reseed itself. The point I wanted you to answer is this: If the Government takes charge of those lands and restricts the pasturage so that the grass can reseed itself and improve the pasturage, would it not have a tendency to cause people to go there and take up homesteads who could secure to themselves pasture for their cattle rather than the present system, which destroys the pasturage? I want you to answer that.

Mr. WALSH. Yes, sir; I will answer that in this way: The fact that there is now a great rush of settlers to our State, taking up these homesteads, would dispose of the suggestion that anybody is kept from settling on our State lands by reason of the fact that the range conditions have been so deteriorated as not to make them any longer an inducement. But I will answer you also with perfect frankness in this: That if you cut our sheep and cattle in two, if you commanded us to sell off half of what we have got, and not raise another cow, and send every other sheep to the market, I will agree with you as a matter of course that there would be more grass on the range. I will agree with you about that, sir.

Senator LATIMER. I thought you stated a few moments ago that the objection to settling in the forest reserve was the fact that the lease would include the land all around and the settler would not have the advantage of the pasture.

Mr. WALSH. Yes, sir.

Senator LATIMER. If the cattle run at large and the land is overstocked, would it not have the same effect, or a worse effect?

Mr. WALSH. Why, the homesteader has just exactly the same chance as everybody else. The new man has just exactly the same chance as the man who has been there for twenty years.

Senator DOLLIVER. Do you indorse the system that prevails at present?

Mr. WALSH. I say, sir, that our people simply ask to be let alone.

Senator DOLLIVER. Now, what is the condition of your company? Are they using the public lands?

Mr. WALSH. We are obliged now to get permits for our summer range. In the winter our cattle are taken within our own inclosures. We feed them in pastures.

Senator DOLLIVER. You get the permits from the forest-reserve division?

Mr. WALSH. Yes, sir; our sheep, however, in the winter time, with the exception of a single band—we get a winter permit for a single band on the forest reserve—the remainder of them at present graze upon the open public range.

Senator DOLLIVER. Has your company fenced any part of that?

Mr. WALSH. There were some fences, including some portions of the public range, made quite a good many years ago by our predecessors.

Senator DOLLIVER. That is said to be in violation of law.

Mr. WALSH. It was said to be; yes, sir.

Senator DOLLIVER. Would you recommend the repeal of the law prohibiting the fencing of the public domain?

Mr. WALSH. Not at all, sir; I pray you, sir, to keep it in force.

Senator DOLLIVER. But men have testified that that would entirely destroy the cattle business, if these fences are removed in all sections of the country.

Mr. WALSH. I am able to testify to the condition in the State of Montana; and I know of no reason why it should in the State of Montana. I will tell you why: It will, as a matter of course, affect the range stock business. That is to say, those people who do not make any provision for their stock in the winter time at all, but simply turn the cows loose and the bulls loose and let them go, as a matter of course want the fencing law repealed; and they want a law which will permit them to fence. But any small owner of cattle who takes care of his stock in the winter time, who raises forage for them in the summer, and brings them within the pasture, feeds them, and simply turns them out on the open range or on the forest reserve in the winter time, does not want the law repealed.

Senator PERKINS. But is it not, as a matter of fact, sir, necessary for the protection of your sheep to have herders constantly with them, both summer and winter?

Mr. WALSH. It is, sir.

Senator PERKINS. As a matter of fact, in the case of cattle it is not necessary, except to round them up at certain times?

Mr. WALSH. We herd both the cattle and the sheep, Senator. We have herders on the forest reserve taking care of our cattle in the summer time.

Senator PERKINS. But where the stockmen, the cattlemen, have their land fenced, they let them run at will there. These gentlemen from New Mexico who testified to-day, as I understand it, do not have herders with their cattle all of the time.

Mr. WALSH. No.

Senator PERKINS. But only in a limited period of time, at certain seasons of the year, when they round them up and brand them, and

cut out those that they send to market; whereas the sheep require constant attention, and every night you corral them?

Mr. WALSH. Yes, sir. That is, as a matter of course, sir, carried on to a very great extent in our State. But I may say in this connection, sirs, that the problem is very rapidly solving itself by reason of these inducements, by the dry farming system, and by the extension of these works of irrigation. Immigration is being induced, and the range business, at least in our country, is a thing practically of the past. As I have said to you, I and a great many other people associated with me—

Senator DOLLIVER. Has the forest-reserve system of leasing worked well in your section of the country?

Mr. WALSH. It has been entirely unsatisfactory, for the reason that I indicate to you. Now, understand, in our community there is not the slightest opposition to the preservation of the forests. Any assistance that any of us can give toward that end will be cheerfully given. But we do, sir, object to being called upon to pay for the privilege that everybody else from time immemorial has had without paying, and we do object simply to putting in the hands of these officers the power to say whether we shall or shall not carry on our business.

Senator PERKINS. You undoubtedly have observed, as every other observant person has, in crossing the continent by any one of the five transcontinental lines, that every few miles you will find a wagon covered with canvas and see a couple of Mexican herders with a couple of shepherd dogs caring for several thousand sheep, grazing on the public domain. Do you think that is right?

Mr. WALSH. I have already stated that I think a law penalizing the drifting of sheep should be passed.

Senator PERKINS. But you know that that prevails to a great extent?

Mr. WALSH. Oh, it does.

Senator DOLLIVER. What is the objection to drifting if you have a right to the public domain, abstractly, and you ought not to be burdened in it? Why not let him go where he wants to?

Mr. WALSH. Well, as a matter of abstract right, I dare say your position about the matter is correct. But if the thing is to be so administered as to give protection to the home builder then you should make these regulations. Mr. Boardman, for instance, makes a very proper complaint, that a man will come from the central portion of the State of Montana—here is the way it works, if I may be pardoned for a moment. A man starts from our section of the country, the middle western portion of the country. He starts out with a band of 2,000 sheep, or he may have two or three bands, aggregating, say, 7,500 to 10,500 sheep, and he simply passes them over the country until he arrives at Dorsey, say, where there is a great big shearing plant, and he shears them, and then he simply goes on and travels on down to Bismarck, where he puts them on the train in the fall and sends them down to Chicago.

Senator DOLLIVER. What is the moral objection to that?

Mr. WALSH. The objection is that it is detrimental to the interests of the home builder.

Senator DOLLIVER. Do you regard a cattle company as a home builder?

Mr. WALSH. Why, no; I do not. A cattle company, with a large body of cattle scattered generally over the public range, if there were no other objection to it than their interest, I do not see why you should do so.

Senator LATIMER. What is to hinder a man going in a community that is a little better off than his, covering it with 1,000 or 2,000 or 20,000 sheep and eating up all the grass upon it so that his neighbor could not have any at all?

Mr. WALSH. There is not anything.

Senator LATIMER. Under your system or your idea of conducting it?

Mr. WALSH. That would be prevented by legislation, as I said, preventing him from driving his sheep beyond his headquarters for a certain distance.

Senator LATIMER. No; but he does not drive, he simply carries his sheep right around with him. [Laughter.]

Mr. WALSH. Why, of course those are all matters of detail which should be regulated, and I would not undertake at this time to suggest as to what you should do.

Senator LATIMER. The argument you made a while ago was that in applying to the forest-reserve authorities for the privilege of putting on so many sheep you were limited. I can not see, if you had unlimited rights, why you would not own herd enough to eat up all of the forest reserves and prevent the others from going in, if you had the money to buy the sheep with.

Mr. WALSH. Well, there is no advantage in that; everybody else has exactly the same advantage. Then, as a matter of course, a man has business ideas about these matters, and if there are men already occupying a range and there are enough sheep on the range so that he can not get in, it would be idle for him to purchase a band of sheep large enough to take the entire range, because it would, as a matter of course, be a losing proposition to him, and it would be detrimental and disadvantageous to do so.

The CHAIRMAN. I want to state that we ought to get through with this hearing to-night.

Senator LATIMER. I am through.

The CHAIRMAN. I want to give all reasonable time, but we ought to get through before we adjourn; and I hope to do so, even if we hold pretty late.

Senator LONG. I would like to ask the witness just one question: Your theory is that although this bill specifically, in the proviso, says that it shall not restrict or abridge homesteading or taking land under the public-land laws, and although it provides for grazing the stock of bona fide settlers for domestic purposes on the land, yet that it will prevent, in fact, in operation, homesteading?

Mr. WALSH. In effect.

Senator LONG. And interfere with it?

Mr. WALSH. In effect it will be an obstacle in the way of settlement.

STATEMENT OF DR. J. M. WILSON, OF WYOMING.

Doctor WILSON. I will try to be just as brief as possible. I believe I am the last—and they say they usually keep the best to the last, but you will have to decide that later. I want to thank you for the kindness and courtesy that you have shown all afternoon in listening to

considerable repetition and dry detail; and I have seen, by the questions you have asked, that you are trying to get at the real facts.

As to the range being ruined and wrecked, which some of you probably got the idea is the case, it is in places; but in other places it is not so bad as this. I have here the report of the State auditor of Wyoming, and I will turn to the stock proposition and take the last ten years: In 1896 Wyoming had 297,000 head of cattle; in 1906 she had 508,000 head of cattle.

Senator PERKINS. Nearly double?

Doctor WILSON. Yes, nearly double; over 200,000 more cattle. In 1896 the State had 77,000 horses—I am giving you just the thousands—and in 1906, 79,000, an increase of 2,000 head of horses; in 1896 it had 1,391,000 head of sheep, and in 1906 it had 2,874,000 head of sheep.

The CHAIRMAN. More than double?

Doctor WILSON. More than double. Now, gentlemen, this is the assessment return, and, as a matter of course, although United States Senators are not supposed to know it, assessment returns do not represent full numbers.

That much for the range going. Now, they tell you that the range is overstocked. If it is, gentlemen, it is a self-regulating range. As soon as you overstock it, and a bad winter comes, it is not overstocked next spring. There are losses, and heavy losses.

Senator HANSBROUGH. Suppose a bad winter does not come?

Doctor WILSON. If a bad winter does not come the condition of the stock will compel a man to try to protect himself and get rid of part of it, so that he can take care of what he has.

Senator HANSBROUGH. And reduce his herd?

Doctor WILSON. Yes. It is the same proposition, gentlemen, that if some man comes here, for instance, and finds that in Washington there is a good opportunity for a paper mill, he would go on and build that paper mill, and put \$1,000,000 in it, for instance. Some one else, seeing that he was making money, would come in and put up another paper mill; and they would keep on multiplying paper mills just as long as there was anything in it.

Senator HANSBROUGH. And form a trust pretty soon.

Doctor WILSON. That is exactly the condition with the range business. Just as long as they see anything in it they keep adding to it all the time.

I wondered, when nearly all of the others were speaking to you, why it was they did not have wings, because they were all so wonderfully solicitous about the homesteader and the home builder. Read the history of the West with the great companies, and see the immense solicitude they had then, when men were even hung for taking homesteads in ranges supposed to belong to somebody else, but actually belonging to the Government.

Senator DOLLIVER. Does that frame of mind survive out there in any way, as a matter of fact?

Doctor WILSON. Not in a great many cases. In some cases, yes.

The CHAIRMAN. Your position, as I understand it, is the same as the last speaker's—you want to be let alone; you think that this trouble will correct itself?

Doctor WILSON. To a certain extent; but I will go further if you will give me an opportunity.

The CHAIRMAN. Yes.

Senator PERKINS. Is it not a fact that the increase of stock in your State of Wyoming has been brought about in a great measure by dry farming, by alfalfa growing, and fertilizing your ranges, or regrassing them, and making the business more profitable to the individual holder by doing so? In other words, he has cared for his stock, provided for it in the winter, and therefore he has increased his herd?

Doctor WILSON. Not by dry farming. Dry farming has just been experimented with there during the last two years.

Senator PERKINS. Do you raise alfalfa?

Doctor WILSON. Oh, yes; in the irrigated portions.

Senator PERKINS. And alfilerilla?

Doctor WILSON. No; we have no alfilerilla at all. We have tried it and can not raise it.

Senator HANSBROUGH. Ten years ago, I assume that there was a vast area in Wyoming and the other new States where there was no settlement and no stock.

Doctor WILSON. No.

Senator HANSBROUGH. But now that country is all herded and grazed?

Doctor WILSON. No; there was more in Wyoming in this condition: There were large companies that had located maybe 40 or 50 miles from each other, and the cattle were all turned out on the open range; and, as you will notice, it was mostly a cattle country at one time, almost entirely, and the cattle were turned out on the open range. Then they would get together and send out wagons and round up the entire State. Then each man would bring back toward his own range or home what cattle he had, and turn them out on what he called his own range, and in the spring they would brand the calves, and in the fall round-up they would gather the beef; but that was covering the entire State. Now those large companies are being split up, the most of them, and it has gone into smaller holdings, and those men are raising alfalfa and feed for them, and have tried to take care of them in the winter time, and the consequence is that the loss in stock is nothing like as much in Wyoming to-day in places as it was in the past. Yet there are places in the northern part of the State and the central northern part of the State where there is absolutely no water for irrigation.

Senator HANSBROUGH. Is there any probability that within the next ten years the number of cattle and sheep would double as it has in the last ten years?

Doctor WILSON. I think not; no, sir; but they will increase.

Senator HANSBROUGH. They will increase?

Doctor WILSON. As irrigation goes on and men can take care of it, because in the winter time they are bringing them in and taking care of them, where they used to let them run out on the range entirely.

Senator DOLLIVER. Would it damage the stock industry in Wyoming to have the law in respect to fences on the public lands enforced?

Doctor WILSON. It would damage a great many; yes, sir.

Senator DOLLIVER. Then what are we going to do? We are up against the proposition to enforce laws that would ruin the business or damage it greatly.

Doctor WILSON. The only thing that you can do in that matter is to enforce the law and let us get used to it.

Senator PERKINS. The President's letter, which by direction of the chairman was read here to-day, has not been criticised by anyone. I would like you to say what you have to on that point. He is a stock raiser himself.

Doctor WILSON. I would like to criticise Theodore Roosevelt, but not the President of the United States.

Senator PERKINS. But this letter that is before you is a matter for criticism—friendly criticism, of course.

Doctor WILSON. I know; but while I would be perfectly willing to criticise Theodore Roosevelt, I am not willing to criticise the President of the United States.

The CHAIRMAN. Suppose, in the interest of brevity, as it is getting late (I beg your pardon for suggesting it), you state to us just what you are in favor of in the way of legislation—whether you are in favor of any, and if you are in favor of any, what it is. Then we can apply your statements and explanations to the point.

Doctor WILSON. If you will pardon me first, I will do that later.

The CHAIRMAN. Yes.

Doctor WILSON. Now, with regard to the settlement and this bill favoring the homesteader: Gentlemen, that is a mistake. There is no question about that.

Senator LONG. I would like to hear you specifically on that point. I want to know whether it is in the interest of the homesteader or not.

Doctor WILSON. I will tell you plainly, now, if you will just give me time. I will try to answer all questions. I am a little bit slow with it, but I will try to get there.

We were interested in a range in New Mexico; and the forces that have been going on since we commenced starting settling on the Atlantic Ocean are still going on, rolling and rolling. We had a range there in which we owned 90 per cent of the patented land in probably 1,500,000 acres. That 90 per cent would not exceed 12,000 to 14,000 acres that we had patented where the title passed from the Government. In one season we were put out of business there, and where we formerly ran 30,000 and 35,000 and 40,000 head of sheep we can not run 3,000 to-day. We were put out of business in one year.

Senator LONG. How?

Doctor WILSON. By the homesteaders coming in. We made no fight. We said: "Gentlemen, if this is better for dry farming, if you can do better here than we can, come on. We will sell you what we have." And we have gotten out of there. The railroads this year would have gotten all the stock out of there, but we could not get cars.

Senator FRAZIER. Will you explain in what way the leasing proposition here will obstruct or retard homesteading?

Doctor WILSON. One gentleman that is in favor of this bill came to me at noon, and he said: "Now, you get a bill like this through." I told him then that we did that in New Mexico; that in Wyoming they can come in and destroy our range there in one season in the same way. "Yes, but," he said, "you get a bill like this through and they can not do it." I know they can not, too.

Senator FRAZIER. I agree with him; but I want to get your reasons for it.

Doctor WILSON. I know they can not do it.

Senator LONG. Why can they not do it?

Doctor WILSON. They can not do it for this reason: Suppose I lease land now under this bill. There is no place where it restricts the length of the lease. I have leased land, it has been suggested, for ten years. I believe in the original bill—that is the deal.

Senator FRAZIER. There is not any limit in this bill at all. You can lease it for fifty years as far as that is concerned.

Doctor WILSON. Gentlemen, I do not believe there is a Senator here that thinks for a moment of passing a bill like that, that is going to turn over 450,000,000 acres of land to rules and regulations. I can not believe it.

Senator FRAZIER. Now, go ahead with your statement on the other point.

Senator LONG. Suppose we do; how is the homesteader going to be interfered with?

Doctor WILSON. Well, that is just what I want to get at.

Senator LONG. That is what I want to get at.

Doctor WILSON. We get the lease. We get it for the ten-year period. The homesteader comes in here. For instance, here is a township. We have got a lease of it for ten years. There is no homesteader going to come in and take 160 acres of land in the center of that township—that is, a real homesteader or home builder—because he knows he can not exist and do it. The minute he does that he will have to fence that homestead to protect himself, and he is only getting 160 acres to protect himself on, and there is no legitimate homesteader that will do that. There may be men—we have them in the West as you have them in other places—that take up land to attempt to hold up somebody or attempt to get a man in such a position that he becomes a trespasser and he can not help it. Take, for instance, the laws of Wyoming. If a man has that quarter section in the center of a township and our herder lets one single sheep or anything go on there they are trespassers. But we can turn 10,000 head of cattle in there and they can tramp everything out of existence and he has no redress. All he can do is to go and drive them to the edge of the line there, gently and nicely; and he must not do it too roughly.

Senator DOLLIVER. Should not this law provide that these leases should be made subject to the right of homestead entry, with the preferential right in the homestead entryman to share in this range with the original lessee?

Senator HANSBROUGH. It does provide that now.

Senator FRAZIER. Oh, no; it does not provide that.

Senator HANSBROUGH. Here, in the last sentence, "Nor shall anything herein be construed to prevent bona fide settlers or residents from grazing their stock used for domestic purposes on the public lands affected hereby"—that is, affected by the lease.

Doctor WILSON. I beg your pardon, Senator, that is these milch cows or saddle horses.

Senator LONG. What are "domestic purposes?"

Senator PERKINS. That was explained while you were out, Senator.

Doctor WILSON. It is two or three milch cows, and a work horse or two, and a saddle horse.

Senator DOLLIVER. But should we not put a provision in there giving him the preferential right to share in the lands covered by the lease? And would he not be in a better shape, with the thing regulated by law, than he would be to go up single handed against the cattle company that had occupied this land by mere force?

Doctor WILSON. If you pass this bill, giving the homesteader that goes there the right to his 160 acres of land and give him 10 sections besides, then find how many of those are in favor of it that are now advocating this bill. Give him enough to exist on; put it in the bill. Give him 6 or 10 sections of land, and then he will have some chance to do something. With the 160 acres of land he has no chance.

Senator DOLLIVER. You think that would destroy the enthusiasm?

Doctor WILSON. For the homesteaders? Decidedly. [Laughter.]

Now, another thing that I did not know until the gentleman from Montana was talking: To show you how a thing may work in different parts—now, Mr. Pinchot is looking at me, and he and I do not agree very well, and I will have to attempt to call him down in this thing. This gentleman tells me that sheep in Montana run five months (I believe that is what he said) for 6 cents a head on the forest reserves. In Wyoming, if I recollect, last year the sheep man paid 7 cents a head for two months.

Mr. PINCHOT. I will have to refer you to Colonel Bell on that.

Doctor WILSON. Colonel Bell, you remember, was on the S— Valley, and the reserves were just started then; but I will ask Mr. Pinchot if 7 cents was not practically the average in Wyoming last year?

Mr. PINCHOT. No; five.

A GENTLEMAN. It seems the disadvantage is in our favor.

Doctor WILSON. My understanding from Mr. Potter was that at Rock Spring the average was 7.

Mr. PINCHOT. This year.

Senator DOLLIVER. Maybe the pasture was a little better.

Doctor WILSON. But then they would only eat so much, and naturally they had to travel a little farther. Now, even say 5 cents. In Montana the sheep men were charged, on the forest reserve, 1½ cents a head per month. At 5 cents in Wyoming they were charged 2½ cents a month. I submit to you if that is fair.

Senator DOLLIVER. We have had great tributes to the fertility of Albany County in Wyoming here.

A GENTLEMAN. May I say just one word? Five cents was the minimum allowed by the regulations.

Doctor WILSON. Five was the minimum?

The GENTLEMAN. Yes, sir.

Doctor WILSON. Now, there is the condition that you have. If you put this thing, gentlemen, in a condition where you are building up a great army of Federal employees—an army larger, I believe, than any other branch of the public service, with the exception of the postmasters—you will be building up such a power that you will not know where it is going to end, or what it is going to be used for. Mr. Pinchot and other ones that are with him, that are striving all they can, and honestly striving to do their best along this line, are not going to live forever; and if they did, political fortunes may change, and some other parties may come in; and to turn over an entire empire to rules and regulations is a dangerous precedent.

Senator FRAZIER. Do you not think the effect of this would be to check the homesteading in that entire country if it was put under this lease system?

Doctor WILSON. There is no question about that in my mind—no question.

Senator PERKINS. Do you think, Mr. Wilson, that it was wise policy on the part of the Government to have forest reserves set apart—to take certain areas of our country which are being denuded of timber and set aside for forest reservations?

Doctor WILSON. I certainly do where they are forested areas, but not where the areas are not forested.

A GENTLEMAN. Where they are forested, you mean?

Doctor WILSON. No; where they are not forested—that is, where there is no timber on the land I do not believe it ought to be set aside as a forest reserve.

The GENTLEMAN. That is right.

Doctor WILSON. Some gentleman asked me—it was the chairman, I believe—what I would suggest. It was suggested to us at the Salt Lake convention that we were going to have this fixed anyhow, whether we wanted to or not, and the only thing to do was to get into the wagon and help drive. Now, then, if we have got to get into the wagon and help drive, my idea would be this:

From time immemorial we have had the use of this grass in the States—that is, the people living in the country. They have had it free of cost. They have had it without charge, and in a great many places things have so adjusted themselves now that all trouble is over. People have gotten used to the condition. But if I were going to change it, I would turn simply the grazing privilege over to the State. We have a land board in Wyoming that has been very, very successful in handling and leasing its land, and yet they have a large tract of land that is not leased, thousands of acres; but it is in such localities and scattered so, school sections, and so on, that it controls no water, and they lease for the water. I would simply turn the grazing privilege over to the State and let them handle it as best they could. They are on the ground. Most of the States have land boards. Let those land boards take them up. Then I would leave the land laws exactly as they are, and say that no lease could be made or no grazing privilege given that would not permit a man to go on there at any time that he saw fit and take up a homestead, or any of the other methods that there are for acquiring Government land. That would be my idea.

Senator DOLLIVER. How would that avoid these obstructions to homesteading that you have enlarged upon?

Doctor WILSON. My friend, right to-day I believe the records in the land office will show you—I do not want to talk for other places; I only know what is happening in New Mexico—I doubt whether there have ever been as many homesteads taken in the Territory of New Mexico in any three years as have been taken in the last year and a half. They are coming in all the time. There is no restriction; and if you do not leave it as it is, let the States, where they see fit, take charge of the grazing privilege where there is trouble. Now, there are regions where there is trouble—there is no question about that—and very serious trouble. There are other regions where there is no trouble. There are other regions where the men have gotten

together and settled all their difficulties and are living together in kindness and harmony. It hardly looks fair to take a community that has worked out its own salvation, that has taken this condition that has existed from time immemorial and worked it out, and punish it simply because there is some other community that has not reached that stage of civilization, but still must quarrel. It seems to me that it is hardly fair to punish the people that have been law-abiding and have come around and adjusted all these difficulties themselves.

Senator DOLLIVER. And divided the domain among them?

Doctor WILSON. Yes, sir; that is it—divided it up among them [laughter]—just exactly.

The CHAIRMAN. Is there anything further?

Doctor WILSON. I do not believe that I care to say anything else unless some of the gentlemen have some questions to ask.

Mr. TAYLOR. I just wanted to ask Doctor Wilson—I have listened to his statement—whether, in making that comparison between 1896 and 1906 in the quantity of stock that the State was supporting, he does not think or know that in 1896 the State was a little bit understocked, while to-day men who have been as long in the business as he is think it is overstocked, and that the great cause of this increase in the stock has been in the sheep? I mean the very profitable increase of the business in the last few years and the very large influx from the outside—not the natural increase, but the very large amount they have brought in from Oregon, Washington, Montana, and other parts; and is it not true that the increase in the cattle has been caused largely by the taking up of ranches and irrigating them and keeping more cattle, being able to grow more forage and keep more cattle on the same amount of ground?

Doctor WILSON. Take the ten years previous, Mr. Taylor, and the number of sheep was a fraction under 300,000 head. They increased from 300,000 up to two million eight hundred and some odd thousand. Then there were imported some 1,800,000 last year, and there is no question but that to-day there are 4,500,000 sheep in the State of Wyoming, and those sheep have increased all the time, right along. Wyoming has never gone back in her sheep. She has shifted back and forth in her cattle badly, and in the early days, as Mr. Taylor knows, when they had the big cattle companies, the assessment numbers were greater in proportion than they are now, and Mr. Taylor knows why—because they had to draw money from somewhere else, and the managers would report the cattle dead, and so on, and they could not draw the money.

The CHAIRMAN. Have you concluded your statement?

Doctor WILSON. I am through.

The CHAIRMAN. The President appointed a committee on this matter. Is any member of that committee present that wishes to be heard?

Senator LONG. I would like to ask Doctor Wilson one question. To what extent has the homesteader, the small ranchman, been affected by having the market from these large cattle companies for his surplus raised on his farm?

Doctor WILSON. Where there are large cattle companies, as a matter of course they buy part of his product. As for the old-time cattle companies, remember, now, that there has been an evolution, a transformation. Some of the cattle companies now have good

ranches, but the old-time cattle company had nothing but what they called a home ranch, and they bought up, as a matter of course, what the men would raise, just as the sheep men do to-day in the same territory. They buy up all that they can get from these small ranches, and it has made the value of the ranches more.

The Chairman asked everyone else except me, I believe, what his occupation was, and I wanted to answer that when he asked me, but he did not. I was going to answer him that it was that of a physician and a stockman and a home builder; because I will challenge any man here, I do not care who he is, to deny that it is a fact that a few of us sheep men in central Wyoming are doing more to-day to build up homes and to make homes than any of the homesteaders that are coming in, because we are making it possible for them to come in. We asked the United States Reclamation Service to develop an irrigation project that was there, next to a beautiful town. They said it was too small for the Government to touch. We have taken that up ourselves. There is not a man interested in it but what is a sheep man, and three sheep men lose their lambing grounds by doing it; and yet we expect to spend over \$300,000 on it. We have over \$50,000 or \$60,000 spent already, and we expect to complete that work in the next year and make homes for from 250 to 300 families.

Senator HANSBROUGH. That is being done by private enterprise?

Doctor WILSON. Yes, sir. It was too small for the Government; 200 or 300 families were not enough.

The CHAIRMAN. Is there any member of the committee appointed by the President who wishes to be heard?

Mr. JASTRO. Yes, sir.

STATEMENT OF H. A. JASTRO, ESQ., OF BAKERSFIELD, CAL.

Senator LONG. What is your post-office address and your business?

Mr. JASTRO. My address is Bakersfield; my business is the stock business, and has been for forty years.

I am one of the appointees of the President to confer with the lands commissioners to the best method of improving and disposing of the range. I wish to say to you, gentlemen, that I had the amendment presented to me this morning, and I am fully in accord with it; and I say so from my experience in California and New Mexico and Arizona.

In California we are rather peculiarly situated. We have not very much vacant land that is worth fighting over, except the lands in the high mountains, where there has been no forest reserve created, or out on the desert, which can only be utilized during certain seasons of the year, and only then when we have good rainy seasons—that is, when the grass retains sufficient moisture so that stock can do without water for three or four months in the year.

I believe that pretty much every man in California would be willing to see the public ranges controlled by the Government; and I say this for the reason that our experience with the forest reserves that we created in California has been that since the formation of the forest reserves in the State of California our rivers have given us nearly 25 per cent more water to irrigate lands with. It has kept these roaming herds of cattle and migratory bands of sheep out of

the mountains and out of the plains. They have not tramped our country up; they have not destroyed our native grasses, so that our country is being reseeded; and to-day California carries more stock than she did before there was any forest reserve. That is, I am speaking now of the amount of stock she carries outside of the places where forage is provided for stock.

We find that, at least in my judgment, if the Government will take hold of all the public ranges now, it will make the business a permanency. A man would know what he could do in the business. He would not be troubled and everlastingly harassed by these migratory people that come and go. Why, gentlemen, I have known thousands and thousands of sheep in the State of California to start at San Diego, say, as soon as the rains would start (and of course in that country just the minute it rains the grass comes up), and they would drive their sheep from San Diego clear up to San Francisco on the west side of the San Joaquin, and there they would market them. They pay no taxes to any county; they generally land in San Francisco before tax-paying time comes.

Senator FRAZIER. What is the objection to that? What right has the other man—what greater right has he than the man who drives his sheep on the public domain?

Mr. JASTRO. I do not claim, Senator, that he has any greater right, but I do claim that if the bona fide stockman in such a country were permitted to pay the Government or anybody else any reasonable amount to lease those lands it would make his business a permanency, whereas under the conditions then existing there was no permanency in the business. We never knew when we would have any grass. If we started out in the spring of the year and had grass, some of these roaming Frenchmen would come along there with hundreds of thousands of sheep and go along and feed it out clean and slick, and we would have nothing left for either summer or fall range when they came out of the mountains.

Senator LONG. Where is your range now; in California?

Mr. JASTRO. Yes, sir; California and Arizona.

Senator PERKINS. Your land in California, though, you have bought and paid for?

Mr. JASTRO. Yes, sir; every acre of it.

Senator PERKINS. I know that you have not any public land.

Senator LONG. How is that in Arizona?

Mr. JASTRO. In Arizona we own a very little land, but we use the public domain; and so in New Mexico.

Senator LONG. How much land have you under fence there?

Mr. JASTRO. Where?

Senator LONG. In Arizona?

Mr. JASTRO. We have about 20,000 acres.

Senator FRAZIER. Is that on the public domain?

Mr. JASTRO. No; we fence no public domain. We have about 25,000 acres under fence in Arizona, and quite a body of land in New Mexico, and also in California, but those lands we own absolutely. But we have used, and are using now, a great deal of the Government land. There is no doubt about that. I think we are entitled to it just as much as anybody else, but not to keep any homesteader out or any settler out.

Now, take our proposition in California. It is our business to bring settlers in there. We want to sell our lands. The land is getting to be valuable for the stock business, and we invite settlers to come in. We sell them land. We have inaugurated one of the greatest systems there is in the United States, probably, in the way of private irrigating enterprise, built with our own money. We asked no aid from the Government or anyone else, and I believe we have the most complete system of irrigation there is in the United States to-day. Mr. Newell, I believe, and several of the gentlemen connected with the Government here, can tell you all about that part of it.

Senator LONG. What is the name of the company that you represent?

Mr. JASTRO. The California Land Company.

Senator PERKINS. Tell the committee, for their information, what a splendid domain you have there, and the number of acres you have under cultivation. I would like to get in a little advertisement for California.

Mr. JASTRO. I am afraid, Senator, that if I should tell that to these gentlemen they might think we were monopolists.

Senator PERKINS. It is the most wonderful domain you have there.

Senator LONG. We suspect that already; so you had better explain it so that we will know that you are not.

Senator LATIMER. There are some of us who do not know exactly how you represent the President in this matter.

Mr. JASTRO. I will tell you how I represent the President. I was appointed by the President to confer with the lands commission. I do not represent the President. You probably misunderstood me, Senator. The President appointed some practical stockmen throughout the United States to come here and confer with this lands committee and devise the best methods possible to improve it and pass a law for the leasing of the public domain, so far as in our judgment we could find any law for doing it. That is why I have come here.

So far as our enterprise in California is concerned, we went in there when it was one of the worst deserts in the world, I guess, and we utilized the river—the Kern River. We put weirs across the river; we built canals—hundreds and hundreds and hundreds of miles of canals. We spent in our irrigating streams alone a little over \$4,000,000.

Senator LATIMER. How much land have you in all?

Mr. JASTRO. About 500,000 acres.

Senator LATIMER. Did you buy that from the Government?

Mr. JASTRO. It is mostly all Spanish grants, with the exception of the offsections, that we bought from the Southern Pacific Railroad Company. We induced settlers to come in there; we furnished them water so that they could build homes there, and make our own land, of course, more valuable.

But I do not believe, gentlemen, coming back to the matter of leasing lands, that there is a stockman on the face of the earth to-day who has had any more experience than I have had. I have been in the sheep business for years. We are in the sheep business to-day; we are in the cattle business; we are in the horse business; we are in the hog business. There is not any kind of stock on God's footstool that we do not raise. I have been on the trail from California to the Missouri River with sheep—the first man that ever undertook to do

it. I have driven sheep from Kern County, Cal., clear to the Missouri River, to Helena, Mont. That was during the drouth in California. I have seen California when, in 1876, we had 12,000,000 sheep in the State of California. Those sheep were mostly owned by these migratory people. Not one-tenth of them at that time were owned by the bona fide settlers of the country. You probably remember that, Governor.

Senator PERKINS. I was in the legislature at the time, you remember, when Fowler and Knox and Clark and Miller and our other friends were for us.

Mr. JASTRO. Yes; that is right; I remember that quite distinctly. Those men were traveling throughout the State exactly as I have told you. They not only drove their sheep in there and overstocked our country and fed out our grasses and stamped them out, but they ruined every permanent business then established in the State of California, and I want to say here that I defy any gentleman here to contradict my statement.

Mr. HANSBROUGH. Does that go on now?

Mr. JASTRO. No, sir; it does not go on now in the State of California, except in a limited way.

Senator LATIMER. Do you mean you drove those sheep to Helena, Mont., from California?

Mr. JASTRO. Yes, sir.

Senator LATIMER. And found pasturage along the way sufficient for them?

Mr. JASTRO. I lost a good many sheep, but I got most of them there. It was a matter of life and death with us. We had to get what we could to the Missouri River and sell them for a good price or else let them die at home, and I chose the first.

A GENTLEMAN. Our State was originally stocked in that way, Senator.

Mr. JASTRO. I am the first man that drove them there. I know that country as well as anybody, I can tell you.

Senator LATIMER. Then you were doing the very thing then that you are condemning in the fellows that are roaming up and down through your country now?

Mr. JASTRO. I could not help myself. [Laughter.] I see the evil of it now, Senator. [Laughter.]

Senator PERKINS. Then you lost 50 per cent of your sheep in driving them, and it was only by doing what you did you saved the remainder?

Mr. JASTRO. I saved what I could—that is all. I was compelled to go there, Senator.

Senator LATIMER. Will not the lease system which you are proposing have the effect of causing those sheep to die as your sheep died, for instance?

Mr. JASTRO. No, sir; because the country will not be overstocked. There will not be these migratory fellows going up and down the country with them. You will know exactly what you can do. If we can not keep but 10,000 sheep, we can keep 10,000, but we will have feed for those; whereas heretofore we were compelled to overstock. If I did not overstock, my neighbors did. If I had a water hole out in my county, if I did not have enough sheep to eat off the grass on both sides of the creek, some Jones or Brown or Smith would do it. Every

man was trying to get all there was in sight. I was no better than anybody else.

Senator HANSBROUGH. Under the rules and regulations prescribed in this proposed amendment the number of sheep will be limited to the acreage?

Mr. JASTRO. To the acreage. So it should be. I believe that is the only salvation for this country, to make the stock business a permanency, through Government control. That is my judgment, gentlemen.

The CHAIRMAN. Is there anything further from this witness? If not, is there any other of the President's committee present?

(A gentleman stated that Mr. Stewart, of South Dakota, Mr. Barnes, of New Mexico, and Mr. Garm, of Idaho, were present and wished to be heard.)

STATEMENT OF F. M. STEWART, ESQ., OF BUFFALO GAP, S. DAK.

Senator PERKINS. What is your profession?

Mr. STEWART. Stockman.

I do not know that I can add anything to what has already been said. In South Dakota we differ from some other western States. Half of our State is free range, where cattle are allowed to roam at will. The other half is farm land under the fence law. The part of the State west of the river is now requesting a leasing proposition—a bill of some kind whereby it can legalize the use of this Government land that is now vacant.

On the 1st day of last July there were 8,600,000 acres of Government land unfilled on lying west of the Missouri River in South Dakota. If that was the case at that late date, it is fair to presume that over half of that land will never be filled on. It is within rough breaks on the banks of the various rivers that pass through there and goes along adjacent to the agricultural land, but is not suitable for tilling for agriculture. We would like to be in a position where we can lease that land and get the use of it, and not be considered as trespassers.

I am not much of a public talker, but if you have any questions to ask me, I will try to answer them.

Senator HANSBROUGH. Is the western part of that State settling pretty rapidly with homesteaders and others?

Mr. STEWART. Very rapidly. Since those two railroads started to build across there it has been settling very rapidly, and the filings are something tremendous. I would not pretend to say what they are.

Senator LONG. Are the homesteaders coming into that country?

Mr. STEWART. Oh, yes, sir.

Senator LONG. Will they not be interfered with by this bill?

Mr. STEWART. I do not think so.

Senator LONG. Why not?

Mr. STEWART. I think that a homesteader has always a right to take up a piece of Government land.

Senator LONG. Yes; but how about his stock?

Mr. STEWART. It will depend entirely on what a homesteader has. The majority of the homesteaders that are going in there have no stock besides their domestic animals, their farm teams, and milch cows. There is a vast difference between a homesteader and a set-

tlar. The majority of the people that are going into that country are simply settlers. Their place of residence is in Sioux City and different other places. They are going in there to prove up their land and sell it. They are not taking up the land for the purpose of making a home.

Senator DOLLIVER. That is a fraud of the most vicious character on the General Land Office.

Senator HANSBROUGH. You say a majority of the people going into South Dakota are doing that?

Mr. STEWART. In my judgment; yes, sir.

The CHAIRMAN. What is your business—cattle or sheep?

Mr. STEWART. I have both; also horses.

Senator HANSBROUGH. That is not the case in North Dakota.

Mr. STEWART. I do not know about North Dakota.

Senator DOLLIVER. That would throw a good deal of light on our discussion on that subject, would it not? It would go to vindicate the Secretary of the Interior.

The CHAIRMAN. Is there anything further? You agree, I understand, mainly with the last witness?

Mr. STEWART. Yes, sir.

STATEMENT OF MARTIN GARM, ESQ., OF SUGAR, IDAHO.

Mr. GARM. I am a farmer and stock raiser. There are two propositions here that I wish to speak upon, gentlemen. One is under the law as we have it, or as we had it, and the other is under the law as administered by the Government under the forest-reserve system.

When I first saw Idaho not one of the present towns of Pocatello and Idaho Falls and all those interior towns was in existence. There was not even a log cabin at any of them, with the exception of Idaho Falls; and there was no railroad. There was nothing but a few Indians and a few freighters freighting to Virginia City, Mont.

When I went to live there a few years ago there was plenty of open range for everybody. Everybody prospered. I went and bought out a homesteader that had located there, and been one of the first—he was, in fact, the first locator that located in what is now Freemont County. I purchased a farm from him that was worn out. We had not been long there in the business before we found that there were people coming in from Utah with thousands of head of sheep. They did not own a foot of land. They ran right into our fences, drove our own sheep off the range, and said, "We don't give a damn for your country; all we want is the grass that is here."

Now, we were in a bad situation there. We had gone there and made homes with the intention of living there and spending our lives there. We found this condition forced upon us. Then the forest-reserve system came on and took all of our grazing land, and we thought, "Well, now, we are up against the real thing, and the best thing to do is to sell and get out of here. We can not live."

But let us see how that has worked. On that farm that we had there the most we could raise was 60 bushels of oats to the acre. Year before last our whole entire crop averaged a little better than 101 bushels to the acre. Last year that entire farm averaged a little better than 102 bushels to the acre. And why? Simply because when winter time comes we feed our entire herd upon our own land.

We raised last year over 6,000 bushels of grain and nearly 500 tons of hay on 240 acres. We figure on feeding our sheep ninety days in the year.

What is the result of this? Fremont County is the youngest county in the State of Idaho. We have within a few acres of more acres of land in that county alone than the whole State of Utah has in one county. We have more miles of irrigating ditches and canals than the whole State of Utah. Why? Because the people are coming there and building homes. The forest-reserve system comes in and says, "Gentlemen, if you are a homesteader you have a right to go in here, and we will see," as they told myself and my boys and my neighbors, "that you are protected." We could not done it if it had not been so.

Now let us see about the lease proposition and how it is going to work. There are thousands of these homesteaders coming in, gentlemen—your boys and other men's boys. Look at all these towns that are overcrowded. If you send a man out here in the western country, and he is a good, live man and wants to make a start, they will say, "You can get a piece of land here, but the rest somebody else has got." That man goes on here, and he wants to make a location on 160 acres of land.

Gentlemen, there is one word in the Burkett bill there, and only one word, that is a dangerous and a bad word. It is like the case of the man here in the center of this section of land—he has no outlet. Do not make it a lease in acres; make it per head, and give that man, no matter who he is, a chance when he comes in there and makes his application to the forest division, and says, "I have so many head of cattle, and I want a place to run them this year," so that they will say, "All right, Mr. Man, here you are." Whenever the amount of cattle and sheep come up to the maximum, and they say, "This is all that you can run on our range here," the big man will have to cut down and the little man can build up, and that will go on until they all have the same number of cattle and horses apiece, everyone of them. Then, if there are still new men coming in, the bigger ones will have to cut down, and you will give the little ones a chance.

Senator LONG. What is that dangerous word?

Mr. GARM. Have you the bill there?

Senator LONG. I have.

Mr. GARM. It is not in the amendment; it was in the original bill. What I had reference to was this: Supposing that a man goes in there and he owns forty or fifty thousand acres of land already. Say he owns 20,000 acres. That gives him an area there of 12 miles square. He can well say: "We don't give a damn what the Senate passes or what the Government passes or what they try to do. We are already fixed." But what about the hundreds of thousands of other men that are not already fixed and are born in the world? and, gentlemen, it is not there fault. They are American citizens and have a right to the public domain now, to-day, just as much as I had ten or fifteen or twenty years ago.

That is the stand that I take on this proposition, and here is one thing that is going to catch them: We will say, for instance, that a man goes to work here, and he has the money, and he fences off a strip of land 12 miles long, and it costs to fence the 160 acres about \$500—the very best a man can do. He comes in here and he says: "I will

lease this land for ten years. Now, you can come in here on these conditions: That you shall pay, and it shall be cash, for your proportion, your amount per acre, of all the improvements that are made upon there." That is what is going to get the poor man. He can not do it. Everything he has is hauled in on a wagon, and there have been thousands of homesteaders that have done that, gentlemen, in our western country. They have all the time kept going West, going West, until they have struck the Pacific Ocean, and now they are coming back, and they have got to have homes, and we have got to provide for them. We want to ask you to make it so that all can have an equal chance, and not one man have it all.

The CHAIRMAN. The matter you criticize is not in the amendment.

Mr. GARM. No, sir; it is not in the amendment.

The CHAIRMAN. Have you any criticism of that?

Mr. GARM. Not in here, I have not—no, sir; none whatever.

Senator LONG. What do you say about this first amendment—about the proviso there on page 2? Is that sufficient to protect the homesteader?

(Mr. Garm examined the bill.)

Senator LONG. I mean at the end of the section?

Mr. GARM. Yes, sir; that is all right. It is all right here, if you place the regulation of this matter in the hands of the Forestry Division. We have lived and are now living under the Forestry Service, gentlemen. There are probably in this end of our country 80,000 sheep, now held by men there to the extent of 200, 300, 400, 500, and 1,000 head apiece. They go to the Forestry Division and make application, and say that they need a permit to run so many head of stock, and it is granted them.

There is another thing you want to provide against there. We will say that I am there, and there are three others that are there, and we want to control this grazing ourselves. Mr. A, Mr. B, and Mr. C come in there. They are little men, and they have 1,000 sheep apiece; and they make application to put them on the reserve. We get together, and we make life so miserable for those men that they are obliged to sell; and we offer them probably a good price to get out of the business. We do that with the object of having their rights transferred to us. Make it so that the leases are not transferable, so that whenever a man sells his stock, or another man buys it, that is the end of it; but if he wants to get rid of the stock again, make it so that he still has the same privilege to go in with the other man. If you do not, it will only be a matter of a few years before the little fellow will be out, and the big man will be in, with the advantage that he will have the reserve back of him, and the little man will have nothing to ask for.

That is, with regard to the lease as against the permit. I would be in favor of the permit at all times and under all circumstances, making the same not transferable, and allowing any new man that comes in to have a right to go in and get his per capita.

I do not know that I wish to take up any more of your time, gentlemen.

STATEMENT OF WILL C. BARNES, ESQ., OF LAS VEGAS, N. MEX.

Mr. BARNES. Mr. Chairman and gentlemen, I will only take up your time for just a moment.

There is one thing about this public range question which all of us seem to overlook, and that is the ultimate end of the range. When I first went to Arizona, I went there as a soldier in the United States Army. I took my money and invested it in a little bunch of cattle. This was in 1879. The whole country was a virgin country. We stood off the Indians and Apaches and made our homesteads there. I filed on my first piece of land there. My nearest neighbor was 30 miles away from me. We had a virgin country; but in a few years—in two or three years—other men came in, until my next neighbor was a mile from me. In six or seven years the country had settled up to such an extent that it was overstocked. It got to a point where, in 1886, the outfit that I own branded that year 2,500 calves, and the next year we branded 275. We lost between 6,000 and 7,000 head of cattle that winter. We were all overstocked.

We went to our neighbors the year before, and said: "Here, we have got too many cattle." We tried to get a pool, and agreed to sell off so many animals. Some would agree to cut down their holdings to this extent, and others would not. On top of that came 35,000 head of sheep from New Mexico, that were owned over there—nothing in the world but a bunch of burros—and herd after herd came across our ranges and swept them clean. We fogged them from the tops of the hills with long-range Winchesters, and we dealt them misery; but they ate the grass and went down, clear down to the San Francisco Mountains on the west. They ate them out there, and in the fall they swept back on us, and we dealt them some more misery; but they got the grass, and that winter our cattle died. If I had a little piece of land that I had saved to pasture my saddle horse for the winter, the first man that came along and saw it, whether he was a sheep man or a cattleman, would jump a lot of stock in there to eat it up. So it got to a point where we were all afraid to save winter grass. We knew if we did not get it some one else would.

The result was, gentlemen, that I left that country. We starved out there, and I moved to New Mexico. When I went in at the height of our business in Apache County, Ariz. (it is in the northeast corner), we had 150,000 cattle on the assessment rolls of that county. To-day there are but 5,000. When I left there eight years ago there were no cattle there. We had to ship them all out. The sheep men starved to death. The country was a ruin. We had tramped it and eaten it out until there was nothing there.

Then the forest reserve stepped in, and they took control of the mountain ranges. We had a pasture in the mountains there that was as beautiful a country as God ever looked on. We left it a desert, between the sheep men and the cattle men. We went in there as soon as the snow left—we were so afraid some one would get ahead of us—and we stayed until the snow drove us out, for fear some one would come in there behind us. Now, since the forest reserve took charge of that, there is more grass there to-day than there ever was, and the sheep men—there are nothing left but sheep men; the cow men starved out—are getting the best grass they ever had. And it is my firm belief that if this denuded prairie country and range country

could be put under this same kind of management the grass would come back again and you would make two blades of grass grow where one grows now.

That is all I have to say, gentlemen, unless you desire to ask me some questions.

Senator HANSBROUGH. Is the process of "dealing misery" down in that country through the Winchester?

Mr. BARNES. It was in those days, I am sorry to say. I will admit I have sat on top of a hill and shot just as long as I could reach a band of sheep; and it got so at one time that for a sheep man to see a fellow with a pair of "chaps" on was a signal for war.

Senator HANSBROUGH. You call that "fogging," do you?

Mr. BARNES. Yes, sir; and they did the same. It was a give-and-take game.

Senator LONG. Are there any homesteaders coming in there now?

Mr. BARNES. It is not a homestead country. Outside of the little water courses and the springs, they could never live there; it is a desert pure and simple; it can be nothing else.

The CHAIRMAN. Mr. Garm wishes to add a word to his statement.

**FURTHER STATEMENT OF MARTIN GARM., ESQ., OF SUGAR,
IDAHO.**

Mr. GARM. There was one point I did not mention—the duration of the lease. Now, gentlemen, it looks reasonable on one side that a man would like to get a lease of land for just as long as he could; but, looking at it from the standpoint of the new man coming in all the time, if I could have the running of the range I would say: "Mr. Man, neither you nor anybody else gets a lease of land for longer than one year, with this understanding: That as long as you are in the cattle or the sheep business or any other business you have got just as good a right as any other man upon the face of the earth, and your rights shall be respected." But supposing that a man makes a lease for ten years and buys stock up to the limit of his money. This year he may be in business; next year he may not be in business at all. He may wish to sell all that he has and go out of business, and still his lease is hanging over him; and it prevents new men, homesteaders, coming in. I say when you lease a man a certain tract of land for ten years, make each lease for one year, with the understanding that he has a right to come in again if he so wishes with any number of stock that he has.

**FURTHER STATEMENT OF J. M. BOARDMAN, ESQ., OF HELENA,
MONT.**

Mr. BOARDMAN. Gentlemen, I want to correct what I think was perhaps a misapprehension or a misunderstanding in the minds of some of you Senators regarding Montana. Mr. Walsh seems to have directed his remarks more particularly to the forest reserves of Montana. Montana is a pretty large State. We have over 94,000,000 acres of land in Montana, and the forest reserves of course are confined largely to the mountains. We have on the outside what are commonly termed the cow counties, or what is largely at the present time open range country. The mountains where the forest reserves have been created are at the present time the most thickly populated,

and it is these open ranges in the northern part of the State where the settlers are now coming in and looking for homes. That is what we call, principally speaking, the unappropriated grazing lands of the State. I think Mr. Walsh will bear me out in that statement.

We have, according to the last report, over 38,000,000 of unsurveyed lands in the State of Montana and over 21,000,000 of lands that are appropriated. So that you can see that the large proportion of the unappropriated lands is in the northern part of the State, on what are termed the flat prairie lands of the country.

The CHAIRMAN. Secretary Wilson and Mr. Pinchot are present. Mr. Secretary, have you anything to say?

Secretary WILSON. Nothing. Mr. Pinchot perhaps may want to say something.

Mr. PINCHOT. I think there is nothing, Mr. Chairman, unless there are some questions.

Senator DOLLIVER. Have you carefully examined this bill?

Mr. PINCHOT. I have. There are two slight amendments which I would like to recommend. One of them is to add that the Secretary should have the right to organize grazing districts and that it shall be unlawful to graze except under the rules and regulations only on the grazing districts, because it is impossible to take charge of the whole thing at once.

Senator DOLLIVER. Would it hurt this bill to make more specific provisions respecting the preferential rights of actual settlers?

Mr. PINCHOT. Not a bit; because I know I speak for the Secretary when I say that so far as the administration of the matter in the Department of Agriculture is concerned the settler would have every preference right straight through. I think it would be a good thing.

Then it was suggested at the meeting yesterday that a provision should be embodied in the bill turning over the proceeds beyond what was necessary for administration to the States in which the fees were paid, and a provision to that effect has been drawn.

Senator HANSBROUGH. I suggest that you take the amendment and perfect it in accordance with your view and have it ready here, with duplicate copies for the committee.

Mr. PINCHOT. At what time, Senator?

Senator HANSBROUGH. Whenever they want to meet. I suppose we will meet to-morrow morning.

Mr. PINCHOT. Then, if I may collect as many copies as possible this evening—perhaps Mr. Holbrook can let me have some copies.

Senator HANSBROUGH. You will be able to get a lot of them in the document room right out here.

Mr. PINCHOT. Yes—thank you; I will do that, Senator. I want to make it perfectly definite and clear that the fears which have been expressed here that a bill of this kind would interfere with the settlement of the country, with homesteading, are absolutely unjustified.

Senator LONG. I hope you will redraft that proviso and make it more specific. I should not favor this bill with the proviso in that form.

Mr. PINCHOT. You prefer having it more specific?

Senator LONG. I want it more definite, so as not to interfere at all with homesteading.

Mr. PINCHOT. I will do that.

(The committee thereupon adjourned.)

WEATHER BUREAU.

COMMITTEE ON AGRICULTURE AND FORESTRY,
UNITED STATES SENATE,
Washington, D. C., Wednesday, February 13, 1907.

The committee met at 12 o'clock m.

Present: Senators Proctor (chairman), Dolliver, Burnham, Perkins, Latimer, and Frazier.

The committee thereupon resumed the consideration of the agricultural appropriation bill.

STATEMENT OF A. ZAPPONE, ESQ., CHIEF OF THE DIVISION OF ACCOUNTS AND DISBURSEMENTS, AGRICULTURAL DEPARTMENT.

The CHAIRMAN. State what position you now hold in the Agricultural Department.

Mr. ZAPPONE. I am Chief of the Division of Accounts, and disbursing clerk.

The CHAIRMAN. How long have you held that position?

Mr. ZAPPONE. About a year.

The CHAIRMAN. What place did you hold before that?

Mr. ZAPPONE. Prior to that I was at the Weather Bureau, sir.

The CHAIRMAN. What position did you hold there?

Mr. ZAPPONE. I was in charge of the accounts and disbursements there.

The CHAIRMAN. How long had you held that place?

Mr. ZAPPONE. I held that place about thirteen years.

The CHAIRMAN. Then you first took that place at what time—fourteen years ago?

Mr. ZAPPONE. In 1893.

The CHAIRMAN. Were you in the Bureau in any other place before that?

Mr. ZAPPONE. Prior to that I had been a clerk in that same division.

The CHAIRMAN. When was the first appropriation made for this station at Mount Weather?

Mr. ZAPPONE. The first appropriation was made in 1902, for the construction of buildings by the Weather Bureau. In that year the law named the buildings and specified the amounts to be expended. Mount Weather was not one of those places named.

The CHAIRMAN. It was not named?

Mr. ZAPPONE. It was not named. I merely mention the law of 1902 so as to show the beginning of the erection of buildings. It began in 1902.

The CHAIRMAN. Was a part of that money appropriated naming other buildings used for Mount Weather?

Mr. ZAPPONE. Not out of the appropriation for the fiscal year 1902.

The CHAIRMAN. When was the first money used there?

Mr. ZAPPONE. In the fiscal year 1903. In that year the appropriation was very broad in terms. It said: "To erect not less than six buildings." It left the location of those buildings to the Secretary of Agriculture and the Chief of the Weather Bureau, who had immediate supervision of the work; and it did not specify the amount that should be spent for each building.

Senator LATIMER. That was in 1903?

Mr. ZAPPONE. That was in the fiscal year 1903.

Senator FRAZIER. It provided for how many buildings?

Mr. ZAPPONE. It provided for "not less than six buildings."

Senator FRAZIER. Were the locations designated in the act?

Mr. ZAPPONE. There were no places designated in the act at all. The appropriation was for \$50,000. There were no places designated. The act reads:

For the purchase of sites and the erection of not less than six buildings for use as Weather Bureau observatories, and for all necessary labor, materials, and expenses, plans and specifications to be prepared and approved by the Secretary of Agriculture, and work done under the supervision of the Chief of the Weather Bureau, including the purchase of instruments, furniture, supplies, flagstaffs, and storm-warning signal towers to properly equip these stations, \$50,000.

The CHAIRMAN. How much of that appropriation, approximately, as near as you can tell, was used for Mount Weather?

Mr. ZAPPONE. During the fiscal year 1903?

The CHAIRMAN. Yes.

Mr. ZAPPONE. During the fiscal year 1903 an administration observatory was erected at Mount Weather, Virginia, at an approximate cost of \$15,000, in round numbers. There was also a stable erected there in that year.

The CHAIRMAN. A stable?

Mr. ZAPPONE. Yes, sir; at a cost, in round numbers, of \$1,900.

The CHAIRMAN. Sixteen thousand nine hundred dollars was, then, expended there out of \$50,000?

Mr. ZAPPONE. Out of \$50,000.

The CHAIRMAN. One-third of it and more, although the appropriation was for "not less than six buildings." Were the other five constructed out of that appropriation?

Mr. ZAPPONE. The other five were constructed out of that appropriation.

Senator FRAZIER. That was in the year 1903, was it?

Mr. ZAPPONE. The fiscal year 1903.

The CHAIRMAN. That left \$33,100 for the construction of the other five?

Mr. ZAPPONE. It did, sir.

The CHAIRMAN. Six thousand five hundred apiece; and \$16,900, or \$17,000, we will call it, was applied on that one; but that one was not named in the bill?

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Mr. ZAPPONE. There were no stations named in the bill that year—none at all, sir.

Senator LATIMER. One minute there. Were the buildings that were named in the prior bill put up at those places? You have said that in 1902 the bill named the stations.

Mr. ZAPPONE. It named the stations; yes, sir.

Senator LATIMER. Were the stations built at those places?

Mr. ZAPPONE. They were; yes, sir.

Senator FRAZIER. Senator, will you permit me to ask one question just there? Were these other five stations that were provided for in the act of 1903 erected?

Mr. ZAPPONE. They were, sir.

Senator FRAZIER. At a cost of \$6,000 each, approximately.

The CHAIRMAN. And were they completed?

Mr. ZAPPONE. And completed; yes, sir.

Senator PERKINS. Where were they located, sir?

Mr. ZAPPONE. They were located as follows: Amarilla, Tex., \$7,700. I will just state these figures in round numbers. Key West, Fla., \$10,000; Modena, Utah, \$4,300; Sand Key, Fla., \$5,600; Southeast Farallone, Cal., \$5,200. Making six in all.

The CHAIRMAN. And those six aggregate not more than the \$33,000?

Mr. ZAPPONE. They aggregate not more than \$33,000.

Senator PERKINS. Did the money expended upon these stations which you have named complete them?

The CHAIRMAN. He has stated that it did.

Mr. ZAPPONE. It completed the construction of the building in each case.

Senator PERKINS. I know it did in the case of the Farallone station, because that was in California.

The CHAIRMAN. The appropriation did not include the equipment?

Mr. ZAPPONE. The appropriation has the words "supplies and equipment" included in it; but in the general appropriation of the Weather Bureau, which is termed "General expenses of the Weather Bureau," it also has identically the same language, "for supplies and equipment for the stations."

The CHAIRMAN. So that you supplied them?

Mr. ZAPPONE. We supplied them out of either or both funds; and that is permissible, as I understand the rulings of the Comptroller.

The CHAIRMAN. There might be a question about that, as to why you name specifically an appropriation for new buildings and supplies and equipment, but build the buildings and take the supplies and equipment from another appropriation. It seems to me there is a strong implication that the supplies and equipment should be taken from the same appropriation that the buildings are, as long as they are named in connection with the buildings. However, that is an academic matter.

Mr. ZAPPONE. That may be true, Mr. Chairman, but I think you will see, by noticing the amount appropriated, that it would be utterly impossible to supply everything that is required for each building. The average cost of a Weather Bureau equipment—

The CHAIRMAN. That is all very well; but if you could not do it properly it is no excuse for doing it improperly. However, I have no criticism to make on that; I just want the history of it.

Mr. ZAPPONE. Yes; I see your point.

The CHAIRMAN. Now, when was the next appropriation?

Mr. ZAPPONE. The next appropriation was in the fiscal year 1904. That appropriation reads, you may say, identically like the appropriation for the fiscal year 1903, except that it says, "For the purchase of sites and the erection of not less than five buildings."

The CHAIRMAN. Instead of six?

Mr. ZAPPONE. Instead of six.

The CHAIRMAN. How much was that appropriation?

Mr. ZAPPONE. That appropriation was \$50,000—the same as for the preceding year.

The CHAIRMAN. How much of that was used on Mount Weather?

Mr. ZAPPONE. On the administration observatory, purchase of additional land, and improvements and repairs to the building, about \$3,500. In addition there was a power house and balloon observatory erected there. The cost of the site was \$650, and the cost of the building about \$7,500. In addition to that there was also erected a water tower and tank at a cost of \$1,500.

The CHAIRMAN. Was there anything further?

Mr. ZAPPONE. That was all at Mount Weather, sir.

The CHAIRMAN. What is the sum of those two?

Senator LATIMER. Before you pass from that, I would like to know how much was spent at the other stations.

The CHAIRMAN. Let him give us the aggregate. Have you the figures, Governor Frazier?

Senator FRAZIER. I think it is \$13,200, if I got your figures correctly.

Senator PERKINS. With your permission, Mr. Chairman, we would like to know where the balance of the money was expended upon the other stations, and how much the cost of each was.

The CHAIRMAN. Yes; I do not wish to monopolize the questioning, and I shall be glad to have any of you ask questions whenever you wish; but I thought we would have a direct examination of the witness.

Mr. ZAPPONE. The aggregate amount expended at Mount Weather during the fiscal year 1904 was about \$13,300.

The CHAIRMAN. Thirteen thousand three hundred dollars out of \$50,000?

Mr. ZAPPONE. Out of \$50,000.

The CHAIRMAN. That is something more than a quarter. What other stations were built out of the appropriation?

Senator LATIMER. Does this provide each year that they shall be new stations? Are these five that are mentioned there to be new stations?

Mr. ZAPPONE. The appropriation each year contemplates not exceeding five or six stations, as they are named in the law, and leaves the location of those stations and the amount which shall be expended at each to the discretion of the Secretary of Agriculture and the Chief of the Weather Bureau.

Senator LATIMER. I understand that, but the point I make is, could that \$50,000 be used at the stations already erected, or must they be new sites?

Senator PERKINS. The law provides for additional stations, does it not, sir?

Mr. ZAPPONE. I failed to read the proviso that was included in the law of 1904, and when I do that you will see that any balance may be applied to the repair and improvement of other buildings owned by the Government. With your permission I will read the proviso.

The CHAIRMAN. Yes.

Mr. ZAPPONE (reading):

Provided, That if any of the money for these several buildings remains unexpended for the special purposes for which it is appropriated, so much of it as is necessary may be expended for the repair, improvement, and equipment of any other buildings or grounds owned by the Government and occupied by the Weather Bureau.

That was the first year in which the proviso appeared.

Senator LATIMER. That was 1904?

Mr. ZAPPONE. 1904.

Senator DOLLIVER. Is that the same year in which these additions and new buildings at Mount Weather were constructed?

Mr. ZAPPONE. They were begun in 1903. This is the next year.

The CHAIRMAN. That proviso was not put on until 1904.

Senator PERKINS. But that proviso, if I understand it correctly, Mr. Chairman, not only permits, but authorizes the Chief of the Bureau, in his discretion, to expend all of this money upon Mount Weather if he deems it for the interest of the service to do so.

Senator FRAZIER. Oh, no, Senator.

The CHAIRMAN. I do not so understand it. It is to construct "not less than five."

Senator PERKINS. But if he does not construct them and this money is left over—

The CHAIRMAN. I understand the proviso differently. If there is any money left after construction—

Senator FRAZIER. Suppose you read that again.

Senator PERKINS. You think it is mandatory upon him to construct five?

The CHAIRMAN. I think it is mandatory upon him to construct five. Then if there is any surplus left he may use it for repairs. That is the way I understand the proviso.

Mr. ZAPPONE. He may use the balance for repairs.

Senator FRAZIER. But he is directed in the first instance to construct five additional stations?

Mr. ZAPPONE. Five additional stations; and those buildings may be located at any place that he may, with the approval of the Secretary, deem necessary. One of those buildings each year, in my opinion, could be erected at Mount Weather, just as has been done.

Senator LATIMER. One question right there: What about the construction he places on it, that one of these buildings might be built, say, at Mount Weather or any other place where they have already located? It does not say that they must locate a new place, but a building.

Senator PERKINS. Outside the District of Columbia?

Senator LATIMER. Yes; outside of the District of Columbia—in California. Would a new building at the same place where a Weather Bureau station is already located comply with that law?

Senator PERKINS. I do not think it would violate it.

Mr. ZAPPONE. I do not think there is any question about that, sir, because it would come under this part of the language of the law:

For the purchase of sites and the erection of not less than five buildings for use as Weather Bureau observatories.

They can go ahead under that and each year erect one or more buildings at Mount Weather, just so that they erect five in all, as required by the law. One or two of them may be at Mount Weather, but there must be three at other places.

The CHAIRMAN. Four.

Mr. ZAPPONE. Three or four, as the case may be. Now, then, if there was any small balance remaining after all that is done, that balance can be used for the repairs and improvement of buildings owned by the Government at Mount Weather or at any other point over the country.

Senator PERKINS. He has the privilege of erecting one or more, if he wants to, at Mount Weather?

Mr. ZAPPONE. I do not think there is any question about that at all, gentlemen.

The CHAIRMAN. Now name the other four that were constructed out of that appropriation.

Mr. ZAPPONE. Devils Lake, N. Dak.; Duluth, Minn.; Havre, Mont., and Yellowstone Park, Wyo.

The CHAIRMAN. At a cost of how much?

Mr. ZAPPONE. The difference between \$13,300, in round numbers, and \$50,000—about \$36,700.

The CHAIRMAN. Now give us the next appropriation.

Mr. ZAPPONE. The next appropriation is for the fiscal year 1905.

The CHAIRMAN. What was that?

Mr. ZAPPONE. The appropriation for the fiscal year 1905 reads exactly like that for the fiscal year 1904 except that there is an appropriation of \$48,000 for "not exceeding five buildings," instead of \$50,000. In other words, there is a difference of \$2,000 in the amount of the appropriation.

The CHAIRMAN. How much of that was used for Mount Weather?

Mr. ZAPPONE. At Mount Weather an absolute magnetic observatory was erected at a cost of \$7,000. A variation magnetic observatory was erected at a cost of \$8,900. A barn was erected at a cost of \$900. That is in addition to the stable I have already referred to. It was a barn for storage and for housing the extra animals and teams. You see, there was about 90 acres of ground there, and there were a good many teams and horses required to keep up not only the establishment, but the repairs and improvements to the grounds. In addition to those that I have named, there was an old farmhouse on the site when it was purchased, and that was improved and repaired at a cost of \$1,300.

Senator FRAZIER. Are those all the expenditures for Mount Weather?

Mr. ZAPPONE. Those are all for Mount Weather.

The CHAIRMAN. Eighteen thousand one hundred dollars. The other buildings were constructed, were they—the other four?

Mr. ZAPPONE. The other buildings were constructed at Columbia, S. C.—

Senator LATIMER. How much for that one?

Mr. ZAPPONE. Twelve thousand nine hundred dollars; at Devils Lake, N. Dak.—

The CHAIRMAN. That was in the previous one?

Mr. ZAPPONE. The building was repaired and improved at a cost of \$605. Nantucket, Mass., \$4,700; Oklahoma, Okla., improvement and repairs to existing buildings, \$344; Peoria, Ill., new building, \$7,900. I find I have made one omission there. The administration observatory building—that is, the main building—was also improved or repaired at an expense of \$2,500.

The CHAIRMAN. That is in 1905?

Mr. ZAPPONE. In 1905.

The CHAIRMAN. That makes \$20,600, as I make it?

Mr. ZAPPONE. That is about right, sir.

The CHAIRMAN. Now, 1906?

Mr. ZAPPONE. The appropriation for the fiscal year 1906 is practically like that for 1904 and 1905, except that there is an additional proviso, and the amount of the appropriation is increased from \$48,000 to \$53,000. The additional proviso is as follows:

And provided further, That a portion of the Federal building site at Springfield, Illinois, fronting ninety feet on Monroe street, and extending back by that width one hundred and sixty feet along Seventh street to paved alley, may be used as a site for one of the five buildings proposed above, and it is hereby transferred to the Department of Agriculture for that purpose.

Senator FRAZIER. Fifty-three thousand dollars was the total amount, was it?

Mr. ZAPPONE. Fifty-three thousand dollars was the total amount of the appropriation.

The CHAIRMAN. And "not less than five"—is that the wording?

Mr. ZAPPONE. Not less than five buildings. At Mount Weather, Virginia, the physical laboratory observatory was begun, and during that year there was expended from this fund \$12,800.

The CHAIRMAN. In all?

Mr. ZAPPONE. In all. In addition, buildings were constructed at the following-named points—

Senator FRAZIER. Was that \$12,800 all that was expended at Mount Weather for the year 1906?

Mr. ZAPPONE. It was, from this fund that we have under discussion.

The CHAIRMAN. Let me ask you, right there: Was there anything taken from any other fund—the general expenses or any other fund—in any of these years for Mount Weather?

Mr. ZAPPONE. Yes, sir; I stated that at the beginning of the testimony. I think we had better continue through with the discussion of this particular appropriation for buildings, and then take up the other.

The CHAIRMAN. All right; you are right.

Mr. ZAPPONE. And then we can do that in the same way. If we mix it in here, I am afraid it will get me rather confused.

The other buildings are Bentonville, Ark., \$5,600; Burlington, Vt., \$10,000—

The CHAIRMAN. Was there a building at Burlington, Vt.? This is 1906, is it?

Mr. ZAPPONE. 1906. This begins, you see, with July 1, 1905, and ends with June 30, 1906.

The CHAIRMAN. Yes; but I thought you were giving here appropriations beginning with 1894.

Mr. ZAPPONE. Oh, no; just during the past five years, sir. This discussion is during the past five years.

The CHAIRMAN. All right.

Senator DOLLIVER. I do not notice any buildings there for Iowa.

The CHAIRMAN. Go on with the statement.

Mr. ZAPPONE. Oklahoma, Okla., \$10,200; North Platte, \$3,800; Springfield, Ill., \$10,200.

Senator FRAZIER. That makes four.

Mr. ZAPPONE. Yes, sir; it makes five.

Senator FRAZIER. They still counted Mount Weather as one of the five, then?

Mr. ZAPPONE. That has not been counted as one of the five. I have counted five besides Mount Weather. The Mount Weather station was started out of the small balance that was left. You see, there were Bentonville, Burlington, Oklahoma, North Platte, and Springfield. That makes five.

Senator FRAZIER. Yes.

Mr. ZAPPONE. Then the balance they put in—

The CHAIRMAN. How much was spent at Burlington?

Mr. ZAPPONE. Ten thousand dollars, sir, in round numbers. Now, that takes in each and every appropriation up to the fiscal year 1907, when the language was very materially changed. The appropriations for the preceding years, as you will notice, gentlemen, have been extremely broad in their language, and it is left to the discretion of the Secretary and the Chief of the Weather Bureau as to where these buildings shall be placed and the amount that shall be expended on each.

In the fiscal year 1907 (which is the current fiscal year) the Committee on Agriculture broadened that authority, and instead of its reading "not exceeding five buildings," it reads, "not less than five buildings."

The CHAIRMAN. Previously it had read "not less than five."

Mr. ZAPPONE. Yes; the first bills read "not less than five."

The CHAIRMAN. That is the way I understood it.

Mr. ZAPPONE. Yes. Now, then, in 1907, the law reads "not more than five"—just the substitution of the word "more" for the word "less." Under that the Secretary of Agriculture and the Chief of the Weather Bureau could really construct one building and spend the whole amount of the appropriation on it, I believe. That is the view I would take of it.

The CHAIRMAN. How much was given to Mount Weather?

Senator DOLLIVER. How much did the appropriation give to start with?

Mr. ZAPPONE. The appropriation was the same as the preceding year.

The CHAIRMAN. Fifty-three thousand dollars.

Mr. ZAPPONE. I have it here—\$53,000.

Mr. Chairman, that runs through, briefly, I think, all of the appropriation acts.

The CHAIRMAN. How much of that was given to Mount Weather?

Mr. ZAPPONE. For the physical laboratory observatory, the building that was begun the preceding fiscal year, \$8,000. Cottage for office and residence, \$3,800. Buildings have also been planned for the following-named places. I say "planned" because I believe that those buildings have not been started. I think the contracts have been made, but they have not yet been actually started.

The CHAIRMAN. Money has been set aside for them?

Mr. ZAPPONE. Money has been set aside. That is done at the beginning of the fiscal year, and those buildings are: Anniston, Ala., \$10,300; Iola, Kans., \$10,500; Sandy Hook, N. J., \$9,700. That still leaves a balance of the appropriation of about \$10,700. I do not know whether they are planning for another building or not. This is, in a way, all tentative on this year's appropriation.

The CHAIRMAN. I perhaps made a mistake. I understood that the first step in regard to Mount Weather was made in 1892. I was wrong about that?

Mr. ZAPPONE. Yes, sir; it was 1902, just ten years after.

The CHAIRMAN. There was nothing done about Mount Weather until 1902?

Mr. ZAPPONE. Not until 1902.

Senator DOLLIVER. Where is this Mount Weather?

Mr. ZAPPONE. It is located about 48 miles from here.

The CHAIRMAN. At Snickers Gap.

Mr. ZAPPONE. At old Snickers Gap. It is on the Southern Railroad.

Senator DOLLIVER. Is it on the top of the hill?

Mr. ZAPPONE. It is on the top of the Blue Ridge Mountains—right up on the top of the hill. I believe you gentlemen are going to have Professor Moore here this evening, and he can explain to you the meteorological advantages of that location much better than I can. They have a cordon of stations along the Blue Ridge Range.

The CHAIRMAN. Go back and tell us how much has been used from the general expense fund.

Senator LATIMER. One moment, Mr. Chairman, before you leave that. You spoke there of a residence or house, \$3,000, that came out of that appropriation—the last appropriation.

Mr. ZAPPONE. Yes, sir; a residence and office.

Senator FRAZIER. What was that for?

Mr. ZAPPONE. That is for the purpose of housing the official who is located there. It is a very isolated point indeed, and there are no hotel facilities at all in the immediate vicinity.

Senator LATIMER. Have they built houses of that character at any other weather stations?

Mr. ZAPPONE. All of these buildings that I have named to you are buildings of that character—not only for office purposes, but for living purposes.

Senator LATIMER. At the different places in the States?

Mr. ZAPPONE. The observers of the Weather Bureau are on duty twenty-four hours in the day; and they have to watch their automatic instruments during all that time, and during the approach of very severe storms those men work early and late, and it is a signal advantage to have a man living on the premises. The Government is really the gainer in every way by such an arrangement.

The CHAIRMAN. Does Professor Moore himself live there in the summer time?

Mr. ZAPPONE. Professor Moore has been there supervising the work during the summer months; how long, I can not say.

The CHAIRMAN. With his family?

Mr. ZAPPONE. That I do not know, sir. I am not sure about that part. He has a wife; he has not much family.

The CHAIRMAN. There is no other residence there but this?

Mr. ZAPPONE. There is no other residence there except in the main building—the main observatory building. The permanent force that is there is housed in that building. It must be housed there. There is no other place for them to live.

The CHAIRMAN. That is, they have rooms and cooking arrangements?

Mr. ZAPPONE. They have a single room, and they have cooking arrangements. They have what they call a mess, and that mess is at their own expense. Each one pays in so much to that each day. It is not at the expense of the Government at all. The Government furnishes the quarters, and they are located there permanently.

The CHAIRMAN. Now go on with the general fund.

Mr. ZAPPONE. In the fiscal year 1903, the first year out of which any expense was incurred at Mount Weather, the following supplies were also purchased for that station—

Senator FRAZIER. Is that in the nature of equipment, or buildings?

Mr. ZAPPONE. This is in the nature of equipment. Out of the appropriation for general expenses, Weather Bureau, we could not erect a building, as I understand it; that requires a general statute or law, and the building must be specifically named. But we can do all these other acts. We can do everything that is necessary for the maintenance and equipment of stations for observations. It is the only fund that the Weather Bureau has had under its control for years to conduct its business, outside of the regular salary fund. We have a salary fund, and then this general fund, out of which everything else is done.

During the fiscal year 1903 the following sums were expended:

Apparatus, machinery, implements, etc., \$4,140.69.

Miscellaneous supplies, equipment, fuel, forage, \$60.43.

Hauling supplies, equipment, fuel, forage, etc., \$38.75.

Construction of telegraph and telephone lines, repairs, etc., \$741.12.

Making a total of \$4,980.99.

Of course it is necessary to maintain every station building after it is erected; and many of these expenses are of that nature.

The CHAIRMAN. 1904?

Mr. ZAPPONE. During the fiscal year 1904 the following amounts were expended:

Repairs to buildings in connection with their maintenance, including installation of instruments, \$1,169.77.

Building fences, making walks and roadways, improving grounds, etc., \$509.45.

Apparatus, machinery, implements, etc., \$2,259.10.

Miscellaneous supplies, equipment, fuel, forage, etc., \$1,103.63.

Hauling supplies, equipment, fuel, forage, etc., \$425.

Horses, wagons, and repairs, \$619.25.

Construction of telegraph and telephone lines, repairs, etc., \$201.10.
Total, \$6,287.30.

I would like to read the language of the law out of which these expenditures were incurred. It reads as follows:

Every expenditure requisite for and incident to the establishment, equipment, and maintenance of meteorological observation stations in the United States.

It reads that way every year; and I believe that you gentlemen will agree with me that that is about as broad as a law can be worded.

The CHAIRMAN. Yes; that is broad. Now 1905?

Mr. ZAPPONE. During the fiscal year 1905 the following expenditures were incurred at Mount Weather from the appropriation for general expenses:

Repairs to buildings in connection with their maintenance, including installation of instruments, \$4,319.14.

Building fences and making walks and roadways, improving grounds, etc., \$5,187.60.

Apparatus, machinery, implements, etc., \$15,801.62.

Miscellaneous supplies, equipment, fuel, forage, etc., \$10,897.06.

Hauling supplies, equipment, fuel, forage, etc., \$3,655.20.

Horses, wagons, and repairs, \$311.64.

Construction of telegraph and telephone lines, repairs, etc., \$836.20.

Total, \$41,008.46.

In addition, there was a kite shelter erected at Mount Weather at a cost of \$1,738.69; making a grand total of \$42,747.15. This kite shelter was for the purpose of housing the instruments, kites, and reels, and so forth, for conducting the aerial research work. It is like shelters that we have put up all over the country at our different stations, except that it is many times larger. Those are small. This is rather a large one, and was made necessary by this particular research work that they are doing.

The CHAIRMAN. 1906?

Mr. ZAPPONE. At this point I would also like to call attention to the following words that appear in the law for general expenses, Weather Bureau:

For aerial observations and reports.

That is practically the nature of the work at Mount Weather. It is aerial research work. They feel that they have exhausted every means on the surface of the earth to improve their forecasts, and now they are going up into the upper air and seeing what is there—seeing what they can find there to improve them. It is aerial research work by means of kites and balloons.

The expenditures from the appropriation for general expenses, Weather Bureau, during the fiscal year 1906 were as follows:

Repairs to buildings in connection with their maintenance, including installation of instruments, \$1,972.94.

Building fences, making walks and roadways, improving grounds, etc., \$2,817.81.

Apparatus, machinery, implements, etc., \$10,608.16.

Miscellaneous supplies, equipment, fuel, forage, etc., \$3,751.74.

Hauling supplies, equipment, fuel, forage, etc., \$2,338.88.

Horses, wagons, and repairs, \$460.66.

Construction of telegraph and telephone lines, repairs, etc., \$162.92.
Total, \$22,113.11.

During the fiscal year 1907 (that is, for the period from July 1, 1906, to January 10, 1907, the date on which Professor Moore stated that the total expenditures incurred to that time at Mount Weather were about \$130,000) the expenditures were as follows:

Repairs to buildings in connection with their maintenance, including installation of instruments, \$1,960.90.

Building fences, making walks and roadways, improving grounds, etc., \$1,649.77.

Apparatus, machinery, implements, etc., \$960.49.

Miscellaneous supplies, equipment, fuel, forage, etc., \$2,262.92.

Hauling supplies, equipment, fuel, forage, etc., \$1,782.89.

Horses, wagons, and repairs, \$75.56.

Construction of telegraph and telephone lines, repairs, etc., \$21.20.

Total, \$8,713.73.

Senator LATIMER. Are you giving the expenditures at all the stations or just that one?

Mr. ZAPPONE. Just at Mount Weather; just what we have under discussion here.

Senator LATIMER. Yes.

The CHAIRMAN. That embraces everything that has been laid out there up to this time, does it?

Mr. ZAPPONE. Up to this time; yes, sir.

Senator BURNHAM. How much is that?

Mr. ZAPPONE. It is all here. I can read to you the itemized statement.

The CHAIRMAN. As I make it out, you have had \$75,000 and a fraction over (\$75,200) out of the special fund for building; and out of the general funds you have had one hundred and sixty thousand and odd dollars. I believe that is what the newspaper states.

Mr. ZAPPONE. That is about right, Mr. Chairman.

The CHAIRMAN. Yes. I have only run that over in round numbers.

Mr. ZAPPONE. The total amount is \$161,093.26. That is up to January 10, 1907, inclusive.

The CHAIRMAN. Out of this general fund you have not, in going over the items, named the construction of new buildings.

Mr. ZAPPONE. There has been no construction of buildings out of the general expense fund at all at any time; but supplies and apparatus have been purchased——

The CHAIRMAN. Buildings have been added to somewhat?

Mr. ZAPPONE. And repairs to buildings have been made from time to time. That fund was the only fund that the Weather Bureau had for years to make any repairs to buildings from; and we have owned from 8 to 10 buildings for a long number of years. These buildings were erected some time ago.

The CHAIRMAN. So far as I have heard, there has no mention been made in any appropriation bill of Mount Weather.

Mr. ZAPPONE. No specific mention has been made at all, Mr. Chairman.

The CHAIRMAN. The words "Mount Weather" have not been in any appropriation bill?

Mr. ZAPPONE. Never.

The CHAIRMAN. What reference has been made to it in the reports of the Chief of the Weather Bureau and of the Secretary? Are you familiar with those?

Mr. ZAPPONE. I am, sir.

The CHAIRMAN. Can you tell me what reference has been made?

Mr. ZAPPONE. In his annual report for each year after the beginning of the construction at Mount Weather, the Chief of the Weather Bureau has given a full description of the work going on at that point, and stated at length the results that they hope to attain.

The CHAIRMAN. Has he stated in those reports anything about the amount expended? If you are not familiar with that, I can ask him.

Mr. ZAPPONE. I think not, except in a general way, perhaps. I am giving you my recollection of the matter now; and the Secretary each year in his reports, beginning with the year 1903, has made reference to Mount Weather along the same lines, taking his information from the report submitted by the Chief of the Weather Bureau.

Senator DOLLIVER. I would like to inquire whether you are familiar with the peculiarities of this situation at Mount Weather which would lead the Department naturally to concentrate a good many experiments there and make it a much more elaborate station than these others that you have mentioned?

Mr. ZAPPONE. I am in a general way, sir; but I am not a scientific man. Professor Moore can explain that to you in a more lucid way and a more intelligent way.

Briefly, from the point of a layman, as I explained to you here, the Weather Bureau practically has exhausted the science of meteorology so far as obtaining observations on the surface of the earth is concerned—what we stand on; what we have before us. It wants, or it wanted, to keep abreast of foreign countries in the matter of research work; and this entire scheme of research plant or observatory was thought out by our scientific staff, and this plant started. The object of that is to go into the upper air, 2, 3, 4, 5, 10, and 20 miles, and take observations up there by means of automatic instruments—a little instrument that they call a motorautograph. It is an aluminum case in which they have instruments for recording the pressure of the atmosphere, the temperature, and the humidity. When the kite carrying that instrument is hauled in, by means of the steel wire attached to it, the observation is all there, having been recorded automatically; and the height of the kite is measured by the altitude or angle by means of an instrument which they have in this kite shelter that I speak of. So that they have absolute knowledge of the height to which the kite or balloon may ascend, and they get the observation there.

Now, they want to get a series of observations, not only at this station but, later on, perhaps, at other stations over the country, which, of course, would only be small, possibly like our regular stations, but they would have their kite shelter and other apparatus necessary for taking these aerial observations, including the balloons, and we hope by getting a series of such observations to be able to improve the forecasts and keep abreast of the times. It is the first time, I might say, in the history of the Weather Bureau,

that they have ever attempted any experimental work at all, and if we are to find out these secrets of nature, we have got to do it in just that way. Our whole department is a department of research work. We are not there just to sit down and spend the money as it is appropriated by Congress without attempting to do anything new. We must initiate.

Senator DOLLIVER. All of these expenditures are audited in the regular way by the Treasury Department, and the authority to make the expenditure is put to the test of an interpretation of the law?

Mr. ZAPPONE. They are, and have been, sir, right along, and have been passed upon by the Treasury, and their accounting officer has been before this committee of Mr. Littlefield's and said that those expenditures were all right. He also said that the accounts of our department were in very nice shape.

(The committee thereupon took a recess until 2.15 o'clock p. m.)

AFTER RECESS.

STATEMENT OF PROF. WILLIS L. MOORE, CHIEF OF WEATHER BUREAU, DEPARTMENT OF AGRICULTURE.

The CHAIRMAN. You may make whatever statement you wish to, Professor Moore, in regard to the observatory at Mount Weather.

Professor MOORE. The ground was purchased September 22, 1902. The contract for an ordinary weather station, the same as we had up to that time constructed at other places, was let December 20, 1902. A little work was done in excavating during the winter.

The CHAIRMAN. That was in the appropriation bill for 1903, then?

Professor MOORE. The purchase of that ground and the erection of that building were authorized by the appropriation bill that began July 1, 1902, which provided for the erection of not less than six buildings, and made no provision as to where they were to go, the law leaving it discretionary with the Secretary of Agriculture.

The CHAIRMAN. Has Mount Weather ever been mentioned in any appropriation bill specifically?

Professor MOORE. Since 1901 no weather station has ever been specifically mentioned in the appropriation bill. The committee has adopted the policy of leaving it discretionary with the Secretary in all cases.

Senator LATIMER. You said you commenced to break ground on December 20, 1902?

Professor MOORE. Yes, sir. And right there let me make plain that the appropriation for the beginning of Mount Weather was not diverted, as has been mistakenly testified to before the Littlefield committee, to some other purpose. In other words, there was never a specific appropriation for a building at Yellowstone Park, and therefore the money was not diverted by order of the Secretary from Yellowstone Park to Mount Weather. Yellowstone Park and Mount Weather were both created under the authority of the Secretary to put buildings wherever he might see fit. It is true that, under the order of the Secretary, we did take the money that he had at first ordered me to spend in Yellowstone Park, and then he changed his order to allow me to spend that money at Mount Weather. That was the beginning of Mount Weather.

Senator FRAZIER. That was simply in the exercise of his discretion as to the location of these buildings provided by the act?

Professor MOORE. Entirely. In the following year he did authorize me to go ahead and erect a building at Yellowstone Park.

I want to take up the matter where I left off, and I would like to have the committee follow consecutively, by dates, the creation of that institution.

I have said that we began our work in the winter of 1903, the contract having been let December 20, 1902, but there was very little work done until the spring. In the spring of that year I formulated completely in my mind the idea of enlarging that station into a research institution. I talked it over with the Secretary, and we decided that the first thing to do was to write out the scheme completely and lay it before the committee in Congress. That is precisely what we did, as you will see from my annual report for 1903, written August 11, 1903, in which I outlined the whole scheme. Then, by letter of December 18, 1903, I specifically called the attention of the chairman of the Agricultural Appropriations Committee of the House, and of each member of the committee to my report of that year, and asked if they would not please read it before I came before the committee.

The letter referred to is as follows:

U. S. DEPARTMENT OF AGRICULTURE,
CENTRAL OFFICE OF THE WEATHER BUREAU,
Washington D. C., December 18, 1903.

HON JAMES M. WADSWORTH, M. C.

Chairman Agricultural Committee, House of Representatives.

MY DEAR SIR: I would be glad if you could find time to read my administrative report on the work of the Weather Bureau before I am called before the committee to explain our estimates for the support of the Bureau during the coming year. I inclose a copy of the report.

Very truly, yours.

WILLIS L. MOORE,
Chief U. S. Weather Bureau.

(A similar letter sent to Hons. E. Stevens Henry, M. C.; H. C. Adams, M. C.; Charles F. Wright, M. C.; John Lamb, M. C.; Charles F. Scott, M. C.; Sydney J. Bowie, M. C.; Kittredge Haskins, M. C.; Albert S. Burleson, M. C.; Joseph V. Graff, M. C.; A. F. Lever, M. C.; George W. Cromer, M. C.; Phanor Breazeale, M. C.; William Lorimer, M. C.; John W. Cassingham, M. C.; Franklin E. Brooks, M. C.; B. S. Rodey, M. C.)

When I went before the committee, the published hearings were taken up entirely with the discussion of the Flood system and the rearrangement of salaries, so that when I came to that feature of my report that dealt with Mount Weather I found myself before the subcommittee and not before the full committee, and the hearings of the subcommittee were not reported. That is the reason why no discussion of Mount Weather is found in the published hearings of the Agricultural Committee during the winter of 1903.

Senator LATIMER. Why were you before the subcommittee. Who authorized you to go there?

Professor MOORE. The chairman sent for me.

Senator LATIMER. The chairman of the subcommittee was the chairman of the full committee?

Professor MOORE. Of the full committee; yes, sir.

Senator LATIMER. I simply wanted to know why you did not go before the full committee. It was because the chairman called you before the subcommittee?

Professor MOORE. Yes. I had been before the full committee, and was summoned to go the next day; and when I got there the next day—or the day after, or two or three days after, I do not remember which—I found myself before the subcommittee. It had been arranged by the chairman. At that time the discussion of Mount Weather came up. I showed them my annual report, and outlined to them, in a general talk, the plan. Mr. Burleson, in his testimony before the Littlefield committee the other day, specifically says that he remembers my discussing this with Chairman Wadsworth. He remembers Chairman Wadsworth discussing the fact that the Department had a very wide authority in the expenditure of this money. Mr. Burleson further says that Mr. Wadsworth—apparently after I had left the room—remarked that they should not put on the brakes or limit the authority to spend this money wherever the Department might see fit. But I want to call your attention to the fact that there was no limitation put upon the authority of the Secretary. The same authority that had existed the previous year was continued the next year, notwithstanding the fact that I explained that it was from that appropriation we created this institution.

Senator LATIMER. Did you have any knowledge of the fact that they criticised the construction you put upon that authority?

Professor MOORE. There had been no criticism up to that time of anything done at Mount Weather, because nothing had yet been done. There was no criticism in the years to follow in regard to Mount Weather.

Senator FRAZIER. Did any member of the subcommittee or of the full committee criticise the construction that you placed upon the law, or that the Secretary of Agriculture placed upon the law, giving him permission to expend this money anywhere or in any way he pleased, so long as he erected the five or six buildings provided for?

Professor MOORE. It seemed to be taken for granted that the authority was fully vested in the Secretary to spend the money wherever he wished to spend it, and we did not have any detailed discussion as to closely defining any limitation that might be implied in the use of the word "stations." It never occurred to me, and I do not think it ever occurred to any member of the committee, that there was any limitation there.

Senator LATIMER. I would like to have a direct answer to my question: Had you any information of any criticism by any member of the committee with regard to the construction you put on that law or the course you had outlined?

Professor MOORE. None whatever, sir; and I do not think that any criticism took place outside of my presence. I do not think it ever occurred to anybody to make any criticism at that time. I explained that we purposed to go ahead slowly, expending a little out of this fund each year, erecting one or two buildings each year under this general authority that allowed the Secretary to erect five or six buildings.

I would call your attention to the fact that each year, as you will see in each one of my annual reports, the full history was written of what we had done during the past year at Mount Weather and what we proposed to do in the future. In my report, dated October 4, 1904, you will find a full description of the Mount Weather

meteorological research observatory, including the lines of the proposed investigation and buildings completed and projected.

Senator LATIMER. And yet the authority was given just the same?

Professor MOORE. And yet the Agricultural Committee continued the authority under which we were working precisely as they had heretofore. We considered that that was their approval of our action.

Senator LATIMER. Was there any criticism in the year 1904?

Professor MOORE. Not a word, sir. Not only that, but when I went before the committee in 1906 I found a number of new members on the committee. There had been, in the summer of 1905, some newspaper criticisms of Mount Weather, to the effect that we were constructing it without proper authority of law; so that the question of the legality of this thing came up in the newspapers in the summer of 1905. The chairman asked me to detail, for the benefit of the committee, the entire history of the institution; and the published hearings of the winter of 1906 gave the entire history of the beginning of this institution, as nearly as I can recollect, as I am giving it to you now.

Senator LATIMER. The first criticism that was heard came from the newspapers?

Professor MOORE. The first word of criticism came through the newspapers in the summer of 1905.

In the published hearings the chairman called my attention to the fact that there had been criticism of Mount Weather. Those criticisms were largely to the effect that it was constructed illegally. Then the chairman said, "Describe the entire history of Mount Weather." I am stating to you now what those hearings of last winter show, as I recollect them, and I know my recollection is a sound one. When I got through describing what we had done at Mount Weather and what we proposed to do in the future, the Agricultural Committee renewed our authority, just as it had existed from the very beginning of Mount Weather, and not only renewed the authority, but enlarged the Secretary's authority by changing the words "not less than five buildings" to "not more than five buildings," leaving it discretionary with the Secretary to erect two buildings or three buildings, so long as he did not erect more than five buildings. It was an enlargement of the Secretary's prerogatives.

Even as late as this winter the House committee renewed our authority, after all this discussion on Mount Weather, precisely as we have been working all this time, and in all these hearings there has never been a word by any member of the committee criticising our action or intimating in any way, shape, or form, that we did not have full authority. There was never one word uttered by the chairman, especially, until he went before the Littlefield committee.

Those are the facts, and they must stand for themselves. A Representative, sitting at a table, listening all day long to the descriptions of various bureau chiefs, can not carry in his mind all these details—he can not remember all that goes on there. But both Mr. Burleson and Mr. Lamb do remember that I did discuss it before the subcommittee, in 1903, before a dollar had been spent or a stroke made to change the ordinary weather station on Mount Weather into a research institution.

Senator LATIMER. Then, if I have it correctly—and if I am wrong you will correct me—even after you had gone forward and made all these expenditures, after the newspapers had criticised you, and you came before the committee and gave a full history of everything that had been done, they still not only left your power as broad as it was, but broadened it?

Professor MOORE. Yes, sir; they did that in 1906, and they renewed it in the winter of 1907, in that bill that has just come from the House.

Now, I am not criticising the committee, because, while I am not a lawyer, I am firmly of the opinion that the law under which we were working was an ample law. The experts of the Treasury Department have said that the matter was entirely one of administrative discretion with the Secretary of Agriculture, and that he was exercising his function as Congress had delegated it to him, in deciding that he would put one or two of these five buildings at Mount Weather each year, gradually creating a scientific experimental station to deal with these problems, just as, under the general authority to expend money for the support and development of the Weather Bureau, he authorizes me each year to create here and there new stations, although there is not a word in the bill that authorizes him to create new stations.

Senator FRAZIER. There is power in the bill authorizing him to erect certain buildings?

Professor MOORE. Yes.

Senator FRAZIER. Not to exceed five, or not more than five in the last instance.

Professor MOORE. Then, there is a broad general authority given to the Secretary in the following words, under "General expenses, Weather Bureau:"

Every expenditure requisite for and incident to the establishment, equipment, and maintenance of meteorological observation stations in the United States, in the West Indies or on adjacent coasts, in the Hawaiian Islands, and in Bermuda, etc.

That is a large fund; it is a fund of \$562,000. It is from that fund that we create each year a few additional Weather Bureau stations. It is from that fund that we equip the station.

Senator FRAZIER. From what fund did you derive the money by which you constructed these several buildings at Mount Weather?

Professor MOORE. From the building fund.

Senator FRAZIER. From the fund authorizing the building of these five or six buildings?

Professor MOORE. Yes, sir; from that fund. Not exclusively, because last winter the committee authorized us to construct not to exceed four Weather Bureau buildings from the general-expense fund, in addition to the five that we were to construct from a specific fund.

The CHAIRMAN. Why did you change that appropriation from "not less than" to "not more than?"

Professor MOORE. I can not answer that specifically. Mr. Wadsworth made that change. Whether he did it because I said that I had found it difficult, with the increased cost of everything, to erect five buildings, or whether he did it for some other reason I do not know. It was done after I left the committee room.

Senator FRAZIER. The committee did it?

Professor MOORE. The committee did it, and the first time I knew of it was when I saw it in the printed bill.

Senator FRAZIER. It was not done at your suggestion?

Professor MOORE. It was not done at our suggestion; no, sir. I had said before the subcommittee, as I remember, that they ought to increase this \$53,000 fund, because of the great increase in cost of material; and I had found that in one of our buildings, for instance, at Mount Weather, we wanted to spend \$15,000 or so, and at some of our other buildings we had found it difficult to get a bid inside of the fund that we had apportioned. I remember making that statement. Whether it was because of that statement that the chairman altered those words to read "not to exceed," I do not know. I presumed that it was, but I did not know that he was going to do it. I had urged them to increase the fund, which they did not do, but after I had left they put this alteration in. I presume it came about as the result of my statement that the price of material had increased, and that we wanted to put a good deal of money upon a particular building.

The CHAIRMAN. Let me ask you about the station at Birmingham. The disbursing officer said, I believe, that that cost \$10,000.

Professor MOORE. About that.

The CHAIRMAN. You paid nothing for the site there?

Professor MOORE. The site was given us. The site, you see, would have added probably anywhere from \$2,000 to \$5,000. The actual cost was \$10,043.50.

The CHAIRMAN. Is that a two-story building?

Professor MOORE. A two-story building; yes.

The CHAIRMAN. It is about the average of your buildings around the country, is it not? I see some of them are more and some less.

Professor MOORE. That is about the average of the buildings outside. On that same building in Birmingham, Ala., the lowest bid we received this year was something over \$17,000. They ran from that up to \$22,000. We have canceled the bids and called for new bids, but we do not seem to be able to get it constructed within the limit.

The CHAIRMAN. They are the same class of buildings?

Professor MOORE. The same class of buildings.

The CHAIRMAN. And it was built there more cheaply than you could build in other places?

Professor MOORE. Yes. We built a smaller type of building three years ago at Bentonville, Ark., for a little less than \$5,000. For practically the same building at another city our lowest bid was over \$9,000. There has been a great increase in the cost of labor and cost of material.

Senator BURNHAM. I would like to ask what advantage Mount Weather has over other localities. There seems to be a good deal of concentration there.

Professor MOORE. It has no advantage over any other place which is on a mountain crest, at an elevation of about 2,000 feet, and far removed from a trolley line. Any other place having such advantages would answer just as well as Mount Weather. We put it at Mount Weather because it was the closest point to Washington that we could find that had the proper elevation and the proper exposure

for instruments, and was free from the influence of the high voltage of trolley cars.

Senator LONG. How far is it from Washington?

Professor MOORE. Fifty-eight miles by railroad, and 6 miles up the mountain by wagon. Of course it is the one unique station of the service. It is a pure research institution. For instance, we have magnetic instruments there that are probably the most delicate of any in the world. We were able to get a register of every pulsation of Vesuvius—not through the earth, bear in mind, but through the ether waves that came from that eruption.

The CHAIRMAN. Has it been your custom to spend considerable time there in the summer?

Professor MOORE. I have gone there at such times as I could, and superintended the construction of the institution. I was there last year about two months; I was there the year before, I think, about a month. The year before that I was there something like two or three weeks; and I go back and forth, more or less, all the time.

The CHAIRMAN. You are not there much in the winter season, I suppose?

Professor MOORE. I go up in the winter season, yes; but I do not stay any longer than I have to, because our building operations all go on in the summer, and the law requires that these buildings shall be constructed under my supervision. And, as this is a unique institution, it does require a great deal of my personal supervision.

The CHAIRMAN. The Littlefield committee criticised your employment of an architect.

Professor MOORE. Yes; but I do not think that amounted to very much. We employed an architect and paid him 5 per cent on the cost.

The CHAIRMAN. His fee was some \$4,000 or \$5,000?

Professor MOORE. I could not tell you what it has amounted to. We have had two different ones; we have not had the same architect all the time.

Senator FRAZIER. You have not had an architect for each building?

Professor MOORE. Not a separate one. We have had two different architects.

The CHAIRMAN. You have not employed an architect usually for your smaller buildings, have you?

Professor MOORE. Always.

The CHAIRMAN. A local one?

Professor MOORE. Well, sometimes, and sometimes not. As a rule, we have made the plans here. My recollection as to this 5 per cent is that we have compelled the architect to pay his own transportation for his frequent trips there.

Senator LATIMER. Do you make him give a bond?

Professor MOORE. No; he does not make the contract. He only supervises the work of the contractor.

Senator FRAZIER. Are these wooden buildings that you have erected at Mount Weather?

Professor MOORE. Only one. They are nearly all stone, from stone secured right on the premises. Some of them are one-half stone and the upper story shingled.

Senator LONG. I have just come in and possibly this has been brought out. How much has the building cost at Mount Weather?

Professor MOORE. There are several buildings. The total cost so far is about \$160,000, the ground costing but little—only \$2,600.

The CHAIRMAN. Seventy-odd thousand of that is taken from the appropriation for buildings and eighty-odd thousand from the general expense fund?

Professor MOORE. Instruments, machinery, and equipments of all kinds. For instance, our magnetic instruments came from the general fund. I do not remember exactly, but I think the magnetic instruments alone must have cost \$12,000.

Extract from the report of the Chief of the Weather Bureau for 1903.

MOUNT WEATHER RESEARCH OBSERVATORY.

The Weather Bureau is so far convinced of the importance of finding out the laws of this cosmical physics, by which alone the problem can be conclusively solved, that it has been thought proper to found a research observatory at Mount Weather, on the crest of the Blue Ridge Mountains, about 6 miles from Bluemont, Va., and equip it suitably for these investigations. Professor Bigelow has recently been placed in charge of supervising the plans for its construction and development upon the best modern principles. It is evident that such an institution, having its beginning in the early years of the twentieth century, will have an increased usefulness as the years go by, if it is organized according to the demands of the best science. It will require fine instruments and able students if it is to command the respect of the scientific world. The subject of solar physics has already grown to such proportions that the British Association for the Advancement of Science has set off a solar physics section from astronomy and mathematics; the solar physics observatory at South Kensington, under the able directorship of Sir Norman Lockyer, is putting forth valuable results; the solar observations by the Italians for the past thirty years have become invaluable as a basis for these studies; the observatory at Kalocsa, Hungary, and that at Zurich are known to all students for their important publications. Less directly, several of the great astronomical observatories are deriving some of their most valuable discoveries in astrophysics, which is simply another name for stellar meteorology. Thus Potsdam, Paris, Lick, Yerkes, Harvard, and other institutions are working zealously along these lines and filling out the realm of human knowledge in a fashion undreamed of a generation ago. It may be asked why, with all this wealth of material being secured in other places, it should be important for the Weather Bureau to enter upon these studies as well. The answer is simple. These observatories, for one thing, specialize along certain lines, and it is evident that there should be at least one institution in the United States where these results are brought together and studied side by side, so that their combined result at a given time can be worked out harmoniously and correlated with the prevailing weather conditions. Furthermore, the publications of these several observatories are issued from the press as much as two to four years after the observations are actually made, so that it is obvious that these late reports can have little value in practical forecasting. We have no intention to enter upon the advanced research problems which rightly belong to specialists, but rather to adapt to the uses of the meteorologist and the forecaster such portions of the well-known types of observatories as seem to be practicable for the immediate uses of the Weather Bureau.

Specifically, the plan in mind contemplates the development of an observatory as indicated in the following statement:

(1) An observatory building is in process of erection at Mount Weather, which is well adapted as a school of instruction and for making observations of the ordinary kind with the common meteorological instruments, barometers, thermometers, wind and rain gauges, nephoscopes, theodolites, and actinometers. The first floor is for administration, the second for living quarters, the third for laboratories, and the roof for observing.

(2) Plans are being prepared for a plant adapted to generate large quantities of hydrogen for balloon ascensions, including a shop for the construction of balloons and kites. The ascensions will be limited to about 4 miles in height, our immediate purpose being to measure the temperatures and thermal gradients, which will enable us to construct daily isothermal charts on the two upper planes already described, so as to provide isotherms as well as isobars on the high levels. It is proposed to make a complete series of ascensions first at Mount Weather, and afterwards in different portions of the United States, in order to observe the temperature conditions in all classes of cyclones and anticyclones. We may attempt some high ascensions, up to 10 or 12

miles from the ground, when our experience and other conditions warrant; but since storm movements are practically limited to the strata within 4 miles of the ground, the first group of ascensions will be to moderate elevations.

(3) It seems important to install a high-grade bolometer for measuring the invisible solar radiation, which is thought by some students to be largely responsible for the actual temperature of the upper atmosphere. Also, a first-class spectro-heliograph is required for keeping a record of the solar prominences, faculæ, and spots prevailing at the time of making our weather forecasts. These two instruments are the essentials of an efficient solar physics observatory, and would require the services of an able student of physics to bring out the best results and discuss them efficiently in suitable reports.

(4) These records should evidently be supplemented by an observatory equipped with modern instruments for observations in atmospheric electricity and in magnetism, and we note that a number of valuable new instruments have been invented in recent years which we can use. The special subject of this research is the behavior of ions in the atmosphere as forerunners of weather conditions.

Generally, the idea is to bring together for study under one direction the most valuable and practicable observations having a direct bearing on the higher meteorology, which is now engaging the attention of many able physicists and astronomers. In this field are found the best examples of physical and mathematical problems, because it is nature's great laboratory. The atmospheric conditions at Mount Weather are superb, the site being 1,800 feet above the sea level, on a ridge overlooking the wide Shenandoah Valley to the west and the plains of Virginia to the east. An equipment at that place, such as is contemplated, will induce a great scientific activity and generate an intellectual atmosphere highly favorable to the best scholarship. The assistants in charge of the various lines of work will form a strong corps of teachers, who will instruct a new generation of men in the great problems of meteorology, which are destined to occupy the attention of mankind in an increasing ratio with the lapse of time. If the equipment be made up of the very best instruments and able students secured to use them, and especially if patience be manifested in allowing the data to accumulate and be studied in the proper way, an improvement in forecasting for America should be assured. This institution is to be planned for continuous work in the future, and it is not supposed that its effect on forecasting will be immediately manifest, because of the difficulty and complexity of the problems involved. One thing is certain, that the founding of such a research institution is the true scientific way to provide for the future, in assurance that the natural difficulties will finally yield to human persistency and intelligence.

Extract from report of the Chief of the Weather Bureau for 1904.

THE MOUNT WEATHER METEOROLOGICAL RESEARCH OBSERVATORY.

At Mount Weather, Va., it is proposed to make and send out the apparatus for the exploring of the atmosphere to altitudes of 3 to 10 miles. In this work it is probable that many balloons will be simultaneously liberated from different stations, so as to get records of storms and of cold waves from their four quadrants. With the knowledge thus gained of vertical gradients of pressure and of temperature, it will doubtless be possible to gain a better understanding of the mechanics of storms. This exploration will be useful in determining how near right are those who believe that change in temperature other than seasonal is mainly a function of the mechanics of the lower atmosphere—that portion lying below the 10-mile level; that in the study of those aberrations of climate called "weather" investigators need concern themselves only with the atmosphere near the earth; and that variations in the condition and in the intensity of the many forms of solar radiation are inappreciable in their effect on the weather of the earth.

With observations from the magnetic, the electric, and the solar physics observatories which the Department is now building, and which will be equipped with the most approved appliances, opportunity will be given to those who believe that the cyclonic or anticyclonic whirls that constitute storms or cold waves are mainly the result of changes in the amount or intensity of some form of solar radiation. It is the opinion of the writer that the synchronism of changes in the activity of the chromosphere of the sun and the weather of the earth has not yet been established with sufficient definiteness to be of benefit to the forecaster, but a working hypothesis has been formulated which stimulates thought, study, and investigation. This fact must be credited to the patient work of Prof. Frank H. Bigelow. Even those who differ from him in their conclusions relative to the association between astrophysics and meteorology must admit that the fertility of his thought and his earnest seeking after the problems which, when solved, shall raise meteorology from empiricism to a closer

approach to an exact science, have been highly beneficial. The study of storms has too long been made from a single view point. Daring minds are needed, even those that are willing to take a considerable hazard in the hypotheses which they are willing to lay down and attempt to demonstrate; for to doubt is to investigate. New truths are usually discovered by working inductively along conventional lines, but some of the greatest principles in nature have been made known to the world by deductive reasoning and by the assumption of a hypothesis that could not at the time be demonstrated. Due deference must be given to each other's opinions, and all must strive earnestly for the elucidation of the many difficult problems that now confront the meteorologist.

LINES OF PROPOSED INVESTIGATIONS.

It is proposed to make the research at Mount Weather catholic in its broadness; to look for the truth, and not to despise its source or the means of its conveyance; to discuss meteorological observations from the point of view of their relations to solar physics; to select meteorologic and magnetic elements and compare them with solar observations; to carry on research in the allied subjects of radiation, atmospheric electricity, ionization of gases, radioactivity, etc. Progress in knowledge of the effects of the sun's actions upon weather conditions depends upon introducing more refined processes than have generally been assigned to meteorology. It is hoped to determine the nature of the alliance between meteorology and solar physics. The atmosphere of the sun and of the earth, together with the connecting radiations, will be studied as one branch of science having common interests, which may be designated as cosmical meteorology.

In the seven buildings at Mount Weather the Weather Bureau will have the most approved apparatus for measuring atmospheric electricity and magnetism, for measuring the solar radiation in the spectrum, for registering the sun-spot areas, the prominence output, and the extent of the faculae. These are all valuable as registers of the solar energy, which, falling upon the earth, may play a part in stirring up the atmosphere and producing our weather.

INTERPRETING THE LANGUAGE OF THE SUN.

The climate and crop conditions from year to year depend largely upon the invisible and subtle solar radiations, known to exist as waves, like those used in wireless telegraphy. The space between the sun and the earth—that is, the cosmical ether—is filled with wireless messages which science is laboriously learning to interpret. Its votaries do not understand the solar code very well, and the process of deciphering it is like that of learning to read the Babylonian inscriptions, namely, by putting this and that together, learning to read a bit here and there, by intercomparisons, trial, and failure, till at length the language of the sun shall be understood. The time may come when it may be possible to interpret the seasonal weather from year to year in advance. It has not yet arrived. The sun moves leisurely through its cycles and the terrestrial conditions seem to follow loosely. At present all available information concerning these matters comes in scattered form from observatories, in reports two or three years old. It is necessary, therefore, to have instruments, trained research observers and computers, and a discussion of results, subject to the direct control of the Weather Bureau.

BUILDINGS COMPLETED AND PROJECTED.

During the past year the main building of the Weather Bureau observatory has been completed, the power plant and the building from which balloon ascensions and kite flights are to be made have been erected, and the magnetic building started. It has been found that the rocks are entirely free from magnetism, and that the field is uniform, so that it is a suitable place on which to locate a magnetic observatory. A physical laboratory for electrical and radioactive effects is being planned, the erection of which will take place during another year. Finally, a comprehensive physical observatory for photographing the sun directly and through the spectrum, for measuring the radiation energy by actinometry and bolometry, with their allied equipment, will be required. This complex institution must grow up slowly; as plans can be matured along the best modern lines, our assistants must be trained to work in several lines on a harmonious general plan, and the results must be carefully studied as the science progresses.

Extract from the report of the Chief of the Weather Bureau for 1905.

Finally, three years ago the Bureau began the establishing, at Mount Weather, Va., of an institution devoted purely to meteorological research.

The present appropriation for the support of the Bureau is \$1,392,990. This is the amount to be expended during the current fiscal year in applying the inexact science of meteorology to the commerce and the industries of the United States, and to the saving of human life. A knowledge of the coming weather enters so intimately into every contemplated human action that the question is often asked: What are the prospects for further improvement in the accuracy of weather forecasts, and can the seasons ever be foretold? The answer is that the Government has a corps of forecasters, the members of which are the survivors of the fittest in a thorough system of elimination by competition. Since they are now applying all of the knowledge of the atmosphere that has been revealed, little hope for material improvement in their work can be held out until a substantial addition is made to the pure science of the problem. This can only come through experimentation, study, and research. With 200 stations engaged in applying the science, it is a wise economy to devote at least one of them to the work of adding to the knowledge that we are annually spending nearly a million and a half of dollars to apply. Accordingly we have endeavored to lay out a plan of study and research leading to an increase in our knowledge of the laws governing the atmosphere such as should eventually enable our successors, if not ourselves, to add to the accuracy of weather forecasts and to make them for a longer period in advance.

The progress of every branch of science is necessarily slow. Four hundred years of unremitting observation and study were necessary in order to bring astronomy up to its present high standard of accuracy, and it must be expected that the complex problems of meteorology will require time for their elucidation.

The last thirty years has witnessed such remarkable progress in new branches of science that fields of research formerly closed to the meteorologist are now open to him and justly can not be neglected. The discovery of the remarkable properties of radium has opened up a field of research relative to the ionization of gases, and this has led to a complete revolution in our ideas relative to atmospheric electricity. The studies of Professor Langley with the bolometer have led to the perfecting of similar instruments by various European and American students, so that now the analysis and measurement of sunshine and the determination of the nature and influence of the radiations that come from the sun form a fundamental field of study for the meteorologist. Recent observations have led to the discovery of a possibly large variation of the amount of heat that is received from the sun or an equivalent possible variation in the transparency of the highest portions of the earth's atmosphere, a discovery confirmed by corresponding observations in Switzerland. A year of special cloud observations all over the world has led to the downfall of erroneous views as to the general circulation of the atmosphere, while mathematical methods have been perfected that give promise of being directly applicable to the rigorous discussion of these complex motions.

In all these studies the Weather Bureau has hitherto taken a subordinate part, whereas in matters of so-called practical meteorology it has always occupied the leading position.

In order that this country may do its share toward the advancement of meteorology along the lines that specially relate to conditions in America, it is imperative that the Weather Bureau should establish an observatory for its own special research work. It would seem a severe criticism to say that the United States Weather Bureau has 200 stations for routine observations and spends such a large amount of money annually for routine work without doing anything for the permanent improvement of the science upon whose development its efficiency depends. It was long since stated that the highest efficiency in any art implies a perfect knowledge of the higher science behind it.

We have therefore secured a piece of land and inaugurated work at an establishment that is intended to respond to the present and prospective needs of meteorology. We have called this the Mount Weather Research Observatory, and have organized it on a broad and elastic basis so that it may from year to year expand with the growing knowledge of our needs. The other weather bureaus of the world have been inclined to make research more prominent than practical routine. Their appointments, their promotions, and internal organization, and their whole animus, are in harmony with the principle that in the present state of meteorology research is more important than forecasts; that to establish a new law is better than to forecast rains, frosts, or storms; that, in general, our knowledge of the atmosphere and its mechanics needs to be increased so that we may venture upon forecasts that will establish a new standard of accuracy.

In order to prosecute the researches contemplated at Mount Weather, we have established there a plant especially adapted to atmospheric research. By means of balloons and kites, the temperature, moisture, and movements of the air at great heights will be ascertained. The absorption of solar heat by the atmosphere will be measured by means of the pyrheliometer and actinometer. The dissipation of solar light and heat will be determined by the polariscope. The special analysis of the sunbeam will be carried out by means of the bolometer and spectrometer. The electric condition will be determined by means of the electrometer, and the radio-activity, or ionization of the air, by means of the dissipation apparatus of Ebert. To all this we have added apparatus for studying the relations to the atmosphere of the magnetism of the earth, the temperature of the soil, and even the motions of the earth as shown by the seismographs. All these phenomena have been shown to have a more or less intimate connection with meteorology.

In so far as aerial research may require it, sounding balloons will be liberated from many of the weather stations in distant parts of the country in cooperation with those at Mount Weather, since it is considered very important to know the condition of the atmosphere above the land every day of the year up to the greatest attainable height, especially during the passage of storms and cold waves. These so-called sounding balloons may attain altitudes of 20 miles; through them a record will be obtained of the winds and temperatures at that height as well as throughout the whole intermediate strata. Therefore Mount Weather may be expected to do as much for the science of meteorology and the future improvement of the service as the service has already done during the past thirty-five years for the material interests of the United States. As this country led the world in the practical application of meteorology, it is desired henceforth to lead in the development of the science itself.

In addition to the observational side of the above-mentioned studies it is absolutely necessary to provide conveniences for experimental work; that is to say, a physical laboratory in which to investigate all questions that yield to treatment by experiment as distinct from pure observation. There is also needed a power house and an electrical installation for the manufacture, by the electrolytic process, of the hydrogen gas for the use of balloons; this process has been demonstrated to be by far the most convenient and economical method of obtaining large quantities of pure hydrogen. It has even been necessary to stimulate the manufacturers of india rubber in order to secure a material that will retain its elasticity at the very low temperatures to which the balloons are exposed at great altitudes.

As meteorology is essentially a study of the physics of the atmosphere, the physical laboratory becomes the central life of the institution. A capable physicist has therefore been selected as the supervising director of the whole institution, and men of the highest talent for each line of coordinated research.

Similar institutions designed to carry on one or more of these lines of study have been established at Potsdam near Berlin, Pavlovsk near St. Petersburg, Montsouris and Parc St. Maur near Paris, and Kew Observatory near London, but we have combined in the Research Observatory at Mount Weather the principal duties that devolve upon all those observatories, with the special kite work and balloon work carried on by the famous observatory for dynamic meteorology established at Trappes near Paris, by Teisserenc de Bort, the private observatory of Mr. A. L. Rotch, at Blue Hill near Boston, and the new institution established by the government of Prussia, at Lindenberg, about 40 miles southeast of Berlin, where aerial research will be prosecuted under Assmann.

As in the case of all these establishments, so also with the institution at Mount Weather, the employees must necessarily live close by their apparatus, and provision must be made for all the ordinary needs of domestic life precisely as is done in all large astronomical observatories, and in military establishments. This has been accomplished economically and in accordance with established usage.

As it may happen that others, not employees of the Bureau, may be engaged in research that is of importance to the Weather Bureau, it is contemplated to extend to such every facility for the prosecution of their studies at this institution, in the belief that the Bureau will receive great advantage from the association of distinguished scholars and experts.

WORK OF THE YEAR, WITH RECOMMENDATIONS.

THE MOUNT WEATHER RESEARCH OBSERVATORY—BUILDINGS COMPLETED AND PROJECTED.

Work on both buildings and grounds has been pushed as vigorously as circumstances would permit. The administration building and weather station was completed and equipped last fall and observations begun, which have since been used daily by the forecasters at Washington. Two magnetic observatory buildings have been com-

pleted during the year, one for absolute and one for differential determinations of the elements of the earth's magnetism. The instruments for both magnetic observatories are now being installed. The power house, which was completed during the last fiscal year, has been fitted with engines, generators, etc., for use in aerial work. All of the large machines were in place by the end of March, 1905, and work was then resumed on the revolving kite shelter, which was completed before the end of the fiscal year. Work was begun on the building for the physical laboratory in July. There are still some difficult questions regarding the best plans for the solar physics work, but as a final decision is not required at present, more time will be employed in consultation.

In planing the power house and kite shelter and in the installation of machinery in the first named, valuable aid has been rendered by Prof. Charles F. Marvin.

The schedule of apparatus for the solar physics observatory has been submitted to prominent instrument makers for estimates as to cost of construction.

The subject of solar radiation appears to be so important that early in the year the climatologist, Mr. H. H. Kimball, was instructed to prepare himself to take up this line of research at the Mount Weather Observatory. Through the courtesy of Secretary S. P. Langley, of the Smithsonian Institution, arrangements were made for the detail of Mr. Kimball to the Astrophysical Observatory for instructions and actual work in connection with the spectro-bolometric apparatus devised and used at that observatory. This detail commenced on May 1, 1905, and will probably continue until October of the same year. The practical experience thus gained by Mr. Kimball should be of great value to the Bureau when the study of solar radiation is taken up in earnest.

Observations with the Ångström pyrheliometer and the Pickering polarimeter have been continued at Washington throughout the year. A discussion of the results will be found in the Monthly Weather Review for March, 1905. The Ångström instrument has been carefully compared with the actinometers used by the Smithsonian Institution. It is hoped that this will enable us to connect European actinometer work with Professor Langley's spectro-bolometric work, and perhaps to thus obtain some knowledge of variations in solar radiation over a considerable period of time.

METEOROLOGICAL OBSERVATIONS AT MOUNT WEATHER.

Regular twice-daily observations of the several meteorological elements were begun at Mount Weather, Va., in November, 1904, and have been continued uninterruptedly since that time.

PERSONNEL OF MOUNT WEATHER RESEARCH OBSERVATORY.

The research staff has been strengthened by the appointment of William J. Humphreys, Ph. D., Johns Hopkins University, and late professor of physics in the University of Virginia, to be supervising director at Mount Weather, to take effect July 1, 1905, and the recall of Mr. Louis G. Schultz from temporary detail in Argentina in connection with the equipment of magnetic observatories in that country.

Mr. Herbert L. Solyom, recently of the United States Patent Office, has been appointed as a special aid to Professor Humphreys in studies of radiation, ionization, and solar physics.

The organization of the Mount Weather Observatory as at present constituted is as follows:

AT WASHINGTON.

Director.—The Chief.

Board of advisers.—Prof. Cleveland Abbe, Prof. Charles F. Marvin, Prof. Frank H. Bigelow (chairman), Prof. Edward B. Garriott, Prof. Henry J. Cox, Prof. Alfred J. Henry, Prof. Alexander G. McAdie, Prof. Harry C. Frankenfield, and Prof. William J. Humphreys.

AT MOUNT WEATHER.

Supervising director.—Prof. William J. Humphreys, who shall have supervision in detail of all work in the physical laboratory and solar physics observatory and general, rather than detailed, supervision of other researches. He will aid the research directors in matters wherein his knowledge may be of assistance, and will be an adviser rather than a director of their research, although in all matters of cooperation between research directors he will have the controlling voice. He will have charge of the discipline of the institution, referring to the Chief such matters as can not be settled at the station.

Mr. Herbert H. Kimball, who, through the courtesy of Prof. S. P. Langley, is receiving special training in the use of the bolometer in the Smithsonian Institution, will be Professor Humphreys's principal aid in solar physics, and Mr. Herbert L. Solyom, who by the kindness of Prof. E. B. Frost is doing special work at the Yerkes Observatory, will be an additional assistant.

Director of magnetic and electric research.—Mr. Louis G. Schultz, who shall have charge of the magnetic observatories and observations in atmospheric electricity and special electric and magnetic research.

Director of upper air research.—Dr. Oliver L. Fassig, who shall have charge of balloon and kite observations and the discussion thereof. Messrs. Schultz and Fassig will arrange for cooperation in the taking of electrical observations from kites.

Observer in charge of property.—Mr. Charles S. Wood, who, under the general control of the supervising director, shall have charge of the premises, repairs, improvements, heating and lighting, power plants, horses and vehicles, meteorological observations and forms, and the mess and forage funds. He may correspond direct with the central office in regard to the details of the work with which he is charged.

Each official will discuss his own observations and, so far as possible, correlate the events shown by his reports with those indicated by the observations of others. There will be a cheerful willingness to cooperate for the general good of the institution and the advancement of the science of meteorology.

There will be no publication in the bulletins of the Bureau of mere argument of abstract theories in science. The place for such is the scientific publications, which are open to all. No more data will be published in the announcement of results than are necessary to make clear the subject-matter, except when the data are new.

The prime object of the institution, viz, the taking of observations and the gathering of data with which to make experimentation and prosecute research, will be kept in mind. Unpublished data will be open to the use of all recognized investigators, and cooperation with other scientific workers will be encouraged. Questions that may directly or indirectly be of value to the science of meteorology will be proper subjects for investigation. The field of inquiry will therefore be a broad one.

PROBLEMS IN INSTRUMENTAL EQUIPMENT AWAITING SOLUTION.

For a number of years Prof. Charles F. Marvin, the official in charge of the instrumental division, has endeavored to give a portion of his time and efforts to the study of problems which are directly related to the development of new apparatus and the perfection of the equipment now in use. Such efforts seemed to be indispensable, in order to keep pace with the demands for better instrumental devices. Thus far, however, while the value of such work has been conceded, it has had no recognized place or funds in the yearly schedule, and much of the little that has been done was accomplished only by effort during extra hours when the official in charge of the instrument division could be free from the constant interruption incident to the daily routine. During the last ten years the extension of the service with respect to the instrumental equipment of stations has been very great. In 1895 only about 361 automatic instruments of all kinds were in operation at stations. The number at the present time is 1,195.

Instrumental apparatus has been greatly improved and perfected; many new designs have been brought out and other scientific work accomplished—such, for example, as the partial determination of the constants of the anemometer equation and the relation of wind velocities and pressures, the determination of vapor pressures at low temperatures, studies upon the mechanics and equilibrium of kites, etc.

At no time in its past history has the Bureau assumed such an attitude toward the solution of the scientific problems of meteorology as at the present time. Extensive preparations are being made for a comprehensive study of difficult matters that may require years for their solution. At the same time many of the simpler, but equally important, problems are pressing for attention, which it is hoped may be given in the near future.

Some of the investigations that can be taken up when the laboratories at Mount Weather are finished are as follows:

(1) Studies in the development of practical apparatus for the measurement and registration of evaporation, both in the interest of plant physiologists and irrigation engineers.

(2) Apparatus for the better observation and the automatic registration of humidity, especially at low temperatures.

(3) Apparatus for the indication at local offices of river stages. Some work was done on this problem last year, but thus far opportunity has not offered to bring the matter to a satisfactory status.

(4) Apparatus for measurement and registration of solar radiation. This embraces not only the present type of station sunshine recorders, in which improvement is needed, but also the class of instruments known as pyrheliometers, actinometers, etc., such as have been employed for some years by Mr. H. H. Kimball in his special observations.

(5) Stations need apparatus for the more exact registration of the beginning and ending of precipitation. A device for this purpose has been partly worked out by Dr. Oliver L. Fassig, but important structural and mechanical improvements are required to render this device actually available for station use.

(6) Improvements are required in telethermographs. These instruments are needed at many stations.

(7) Rain gauges are needed suitable for exposure on mountain ridges remote from the habitation of the observer and in the watersheds of great rivers, so that the precipitation—snow or rain—for a whole season can be collected and measured, even though regular daily observations be not made.

(8) Apparatus intended for the recording of lightning has already received some attention, but we should be in a position to discuss the structural details of these devices and their merits and demerits on a basis of real experience.

(9) The new science of seismometry has revealed how widely sensitive the seemingly rigid earth really is to vibrations in its crust and that all great earthquakes can be recorded over the entire globe by sufficiently sensitive instruments. On April 4, 1905, a great earthquake occurred in northwestern India, killing and injuring a great many people and causing the total destruction of towns and villages. The entire crust of the earth was set into elastic vibrations, which were recorded at the Weather Bureau and all over the world wherever delicate seismographs were maintained. Dr. F. Omori, secretary of the earthquake investigation committee of Japan, reports, concerning the Indian earthquake, that the large seismograph at Tokyo recorded first the waves proceeding from India to Tokyo direct via Siberia and later on those which, crossing Europe and America, reached Japan by way of the Pacific Ocean. Still more remarkable than this, the seismogram at the Osaka Meteorological Observatory showed the waves which, having reached Japan from India direct, passed on across the Pacific Ocean, America, and Europe, and finally, as it seems, returned to Japan after having made literally a complete circuit of the earth. The time required was two hours three minutes and thirty-five seconds. Certain seismic records appear to show that the crust of the earth is appreciably sensitive to great meteorological changes, and these the Weather Bureau is preparing to study with the aid of the instruments at Washington and those it is about to install elsewhere. The great delicacy of these instruments requires corresponding skill and attention in their maintenance.

(10) The Weather Bureau is almost daily in receipt of requests for information relative to high-wind velocities and the relation of pressure to velocity. This is a subject in great need of further experimental investigation.

(11) Similar to the foregoing is the question of atmospheric humidity at temperatures above 100° F. The present humidity tables end at 140° F. Many inquiries are received for values at higher temperatures, such as are encountered in methods for artificial drying, etc.

The Bureau can render a distinct service to many interests by an accurate extension of the tables into the upper ranges of temperature.

There is a demand upon the Bureau for authoritative results in each of the several lines of inquiry cited above, but progress on such original work has heretofore been impossible. Now, however, with the completion of the physical laboratory at Mount Weather, and the installation of apparatus in this and other buildings at that place, these important problems may soon be attacked, with hope of success in their solution.

Extract from the report of the chief of the Weather Bureau for 1906.

MOUNT WEATHER RESEARCH OBSERVATORY.

The meteorological work of a first-order station has been maintained throughout the year, and telegraphic reports were transmitted to the central office in Washington daily at 8 a. m. and 8 p. m.

Work on the physical laboratory was resumed in July and satisfactory progress was made during the summer and fall of 1905. The building will probably be completed early in 1907.

In the preparation for kite and balloon work, a number of important instruments have been installed and made ready for systematic work. Among these may be mentioned (1) the electrolyzer, for the manufacture of the hydrogen gas employed in the kite balloon and the small rubber balloons; (2) the apparatus for the manufacture of liquid air, employed in testing thermometers at very low temperatures; (3) the apparatus used in testing the barometers, thermometers, and meteorographs employed in connection with the kites and balloons. A medium-sized power kite reel was installed in the revolving kite house early in the year, and experimental kiteflying was begun in September of 1905. During the year the stock of meteorographs, of kites, and of

kite wire was materially increased; the instrumental equipment now includes eight different styles of kite—balloon meteorographs, comprising English, German, and French designs, in addition to the Marvin type heretofore used in the kite work of the Bureau, and the new Fergusson pattern used at the Blue Hill Observatory.

In April, 1906, systematic cooperation was begun in connection with the work of the International Commission of Aerial Research by flying kites on prearranged term days, and this work is being regularly maintained.

The interior finishings of the magnetic observatory buildings, the erection of the piers, and the installation of the magnetic instruments were completed during the year.

The instruments for absolute observations, except the declinometer and some auxiliary apparatus, were received and set up before January 1, 1906. The remaining absolute instruments were received and put in place by the end of May, and routine observations were established at the end of the fiscal year.

The Eschenhagen magnetographs were set up in the basement of the absolute observatory in December, 1905, and have given a satisfactory record of the magnetic elements since that time. The Wild magnetographs were received and installed by the first of June, and were being adjusted at the close of the fiscal year.

A gas plant for heating and illuminating the magnetic observatories was put in during the winter and has given satisfactory service since then.

Plans were prepared for an additional office and dwelling for the director of upper-air research, and work on this building was begun July 1, 1906.

The committee thereupon (at 3 p. m.) went into executive session, after which it adjourned.

INDEX .

GRAZING ON FOREST RESERVES.

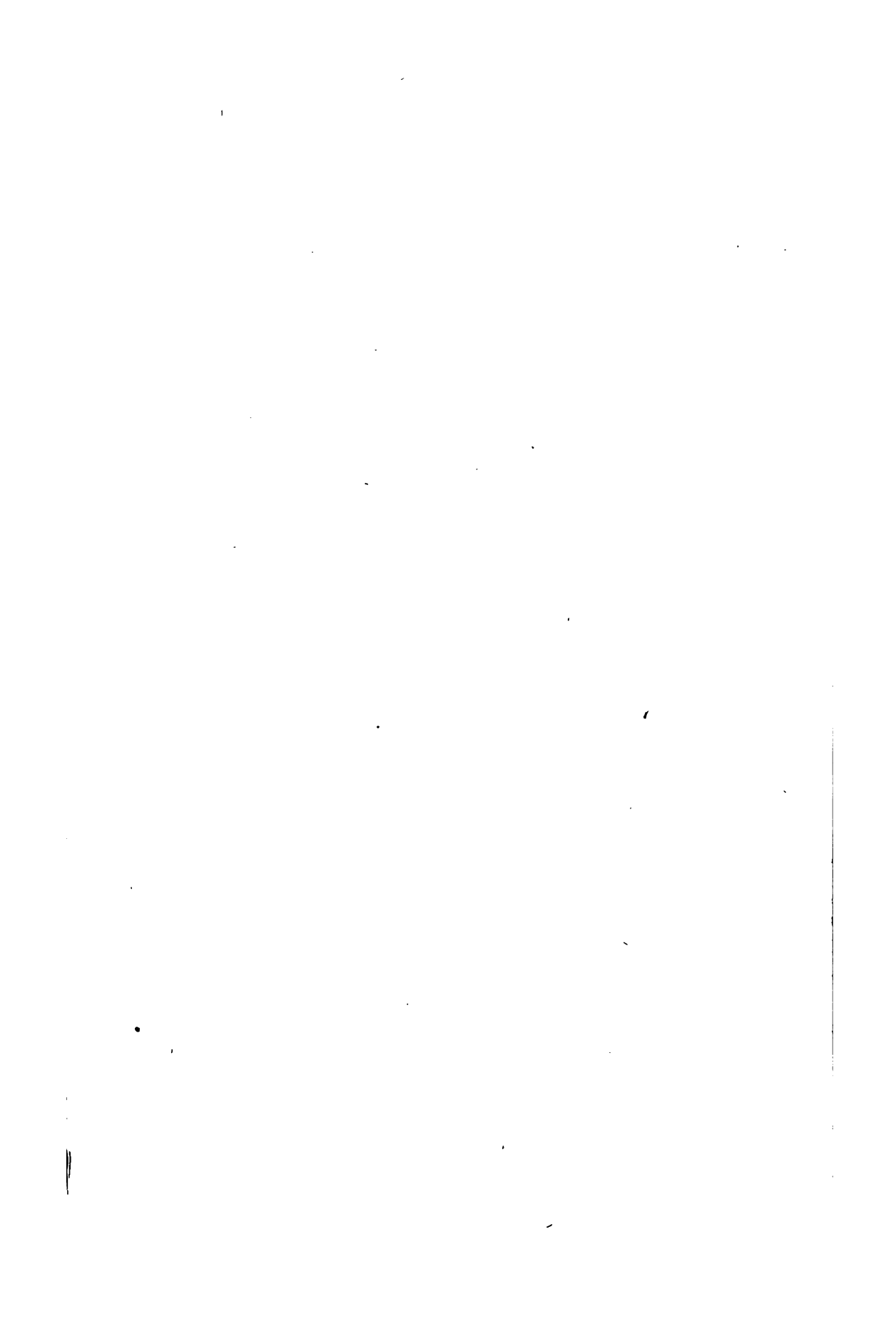
	Page.
A. E. De Ricqles, esq., Denver, Colo.....	88
J. M. Boardman, Helena, Mont.....	96, 148
T. W. Gray, Gunnison, Colo.....	101
C. E. Ayer, Dixon, Wyo.....	104
C. W. Martin, Carlsbad, N. Mex.....	107
Robert Taylor, Casper, Wyo.....	110
E. J. Bell, Albany County, Wyo.....	112
W. H. McKittrick, Arizona.....	117
T. J. Walsh, Helena, Mont.....	120
J. M. Wilson, Wyoming.....	131
H. A. Jastro, Bakersfield, Cal.....	139
F. M. Stewart, Buffalo Gap, S. Dak.....	143
Martin Garm, Sugar, Idaho.....	144, 148
Will C. Barnes, Las Vegas, N. Mex.....	147
Colonel Lockhart, Colorado.....	94

WEATHER BUREAU.

Remarks on, by—	
A. Zappone.....	151
Willis L. Moore.....	164

72

23



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